THE ELEMENTS OF RAILWAY ECONOMICS

BY W. M. ACWORTH

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THE ELEMENTS OF RAILWAY ECONOMICS

BY

SIR WILLIAM M. ACWORTH
K.C.S.I., M.A.

NEW EDITION REVISED AND ENLARGED
BY THE AUTHOR

AND

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PREFACE TO THE NEW EDITION

Almost twenty years have elapsed since this book was first published. It has been reprinted several times; and recently, owing to the much larger number of railwaymen who at the outset of their career attend regular courses of lectures, the demand for it has greatly increased. So it evidently still meets a real need. But it has never been revised; and the form of the accounts and the statistics, inserted as illustrative of the economic argument, are quite out of date. And whereas twenty years ago it was necessary to go to other countries for these illustrations, we now, thanks to the energy of Sir Eric Geddes during his too brief sojourn at the Ministry of Transport, have sufficient accounts and statistics of our own. Moreover, there has been a revolution in the railway world since 1914. The seven years 'possession' by the Government; the Ministry of Transport Act of 1919; the Railways Act of 1921; the great Amalgamations of 1921 and 1922; the establishment of the Rates Tribunal and of the Central and National Wages Boards—these all, as long as English railways last, will stand out as landmarks in their history.

If the book was to continue to serve its purpose, it needed to be revised throughout. This task I should never have attempted, had not Mr. W. T. Stephenson, who as Lecturer for many years at the London School of Economics has had a unique experience of the needs

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of students of all standards, from young clerks up to consuls and Army Staff Officers and post-graduate students from all over the world, given me his invaluable and ungrudging help.

In this new edition the text of the economic argument remains broadly unchanged, though the form of certain statements which have given rise to misunderstandings has been altered ; but the facts have been brought up to date and the illustrations are drawn from the most recent experience. Two new chapters, dealing with the war period and the sweeping changes following upon it, have been added. The final chapter on Passenger Traffic is also new.

The day of the old railwaymen, with their purely practical training and their rule-of-thumb methods, has passed. Railway undertakings are to-day organized on so vast a scale that their management is beyond the grasp of the practical man. Millions of money can be saved on English railways, for the benefit partly of the shareholders, but in much larger degree of the community at large, if the rising railwaymen of the present and the immediate future can be taught to establish and to justify their practice on the basis of sound economic theory, continuously checking the application of theory by familiarity with that which has been done or is being done or attempted in other places outside the range of their own possible individual experience. The knowledge that this little book continues to help to this end will be sufficient reward for the labour involved in its revision.

W. M. A.

October, 1924.

PREFACE TO THE ORIGINAL EDITION

For the last nine years, during which I have lectured on Railway Economics at the London School of Economics, I have been constantly hampered by the want of an English text-book of the subject. Having waited long in the hope that some one else would fill the gap, I have in the end reluctantly attempted to fill it myself. Circumstances have, however, prevented me from completing the book which I had planned, and the pages that follow are only an instalment. My apology for publishing an incomplete fragment lies in the hope that to my own students and perhaps also to the students in classes that have recently been established in Manchester and elsewhere, half a loaf, and that but indifferently baked, may be better than no bread.

I shall be grateful for any correction in matters of fact, or criticism on matters of opinion, that may be sent to me, and trust that the complete work, when published, will benefit by them.

W. M. A.

December, 1904.

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THE ELEMENTS OF RAILWAY ECONOMICS

CHAPTER I

INTRODUCTORY

THE object of this book is to consider railways and railway business from the economic point of view. It will be well, therefore, to begin by understanding precisely what a railway is.

Historically and etymologically a railway is merely a road on which rails are laid. Originally the rails, whether of stone or wood or iron, were laid flat on the surface, and vehicles with ordinary wheels were free either to use the special track or to move at large over the whole width of the road. In the next stage of development, the rails were continuous iron plates with flanges on their outer edges to confine the wheels to the track proper. In the next stage, the rails were raised above the surface and the flange was transferred from the rails to the wheels. The railway thus became specialized ; it could only be used by special vehicles and the special vehicles could no longer be used on ordinary roads. Naturally, the railway forsook the public highway and was laid on land allocated to its sole use.

From the physical point of view we may then define a railway as a road devoted to the exclusive use of vehicles adapted to run on raised rails. But in practice our definition, even on the purely physical side, goes far beyond this. The object of the specialized roadway was to secure economy in cost of haulage, and at a very early period it became evident that economical haulage was inconsistent with the curves and corners and the climbing up and down hill of an ordinary road. And so we have the bridges and viaducts and embankments, the cuttings and tunnels, and all the costly 'works' which belong to our modern idea of a railway.

Now the fact that a railway is a specialized road is in no way inconsistent with its general use by individuals with their own specialized vehicles. A motor or bicycle track is open to any one who brings his own machine and pays the toll demanded. Moreover, canals, a form of specialized road which preceded railways by at least a century, have almost always in every country been free to all users on payment of toll; and even nowadays for canal owners to be also canal carriers is quite exceptional. It was, therefore, not unnaturally assumed when railways first began, not only in England, but in, for instance, France and America, that the canal practice would be followed and private individuals would convey their own traffic along what still remained in law a public highway, though devoted to a special use and constructed—as were also, it may be remembered, the turnpike roads—on land specially acquired in fee simple for the purpose. This assumption underlies the whole of our early railway legislation, and a considerable portion of modern railway legislation and case law is concerned with the efforts of the Legislature and the Courts to harmonize with modern actuality laws conceived in reference to an entirely different state of facts.

Railway law assumes the independent carrier as the normal type. But the legal assumption never had, even in the earliest days, any serious basis of concrete fact. The only justification for the expense of making a railway was economical haulage ; and economical haulage implied two things, mechanical power and concentration of load. Mechanical power, fixed to the spot in the shape of self-acting inclines or stationary engines, evidently must be provided by a single owner, more naturally the owner of the railway than a third party. Power in the shape of a locomotive is a wholesale commodity beyond both the means and the requirements of ordinary customers. And accordingly, almost from the outset the owner of the railway has been, with a few exceptions of great antiquarian but no practical interest, the sole provider of tractive force along it.

It still remained theoretically possible that the actual conveyance and the dealing with the public should be in independent hands. A coach proprietor, for instance, might have supplied a vehicle, published his fares, booked his passengers, and then paid to the railway the tolls fixed by Parliament (*a*) for the use of the road, and (*b*) for the provision of locomotive power. But this never in practice happened ; carriage of passengers, on English railways at least, has always been done exclusively by the railway companies themselves in vehicles belonging to them.[1] In goods traffic, however, matters did not proceed so fast, nor have they gone quite so far. Till comparatively recent times one great firm of private carriers at least remained as an independent intermediary between the public and the railways, hiring trucks from the company, and loading goods entrusted to them at the one end of the transit and unloading them at the other on their own premises. In the case of mineral traffic, and coal in particular, even now in England, though in no other country, the usual custom is that the trucks belong to and are kept in repair by the private owner. But the trucks when on the railway are in the entire charge of the railway company.

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[1] On the Continent and in America a large part of the long-distance express traffic is carried in vehicles belonging to private companies—the *Compagnie Internationale des Wagons-Lits* and the Pullman Company respectively. But

This brief sketch of railway development shows two things. It shows in the first place that when we speak of a railway—in such phrases, for instance, as 'The — Railway is one of the best in the country;' or 'State railways are better or worse than private railways'—we refer to an organism performing four distinct and at least theoretically separable functions; namely, (1) owning a road, (2) supplying the tractive power, (3) owning the carrying stock used on the road, (4) carrying for hire traffic of all sorts. We see further that, though precedent seemed against it, though public opinion and positive legal enactment exerted pressure the other way, normally all these functions are combined in a single hand; and we may therefore assume that their combination has at least some economic justification. Both points are of sufficient importance to require more detailed consideration.

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these two companies run their cars not in the exercise of legal rights over a public highway, but merely as agents employed by the railway administrations under a voluntary contract.

We notice, in the first place, that this combination of the three functions differentiates railways from all other transport undertakings. A canal undertaking normally only owns the road. Sometimes it provides tractive power; very occasionally it carries for hire, but never exclusively. A turnpike trust confined itself to the ownership of the road, while the stage-coach and stage-wagon proprietors confined themselves to owning rolling stock and carrying for hire. Omnibus companies use roads wholly, and tram companies use roads largely provided for them by public taxation; the road used by steamship companies is provided for them by nature. Evidently then railway rates must differ in kind from canal tolls on the one hand, and from omnibus or steamboat fares on the other. Canal tolls are mainly charges for capital provided; omnibus or steamer fares mainly charges for services rendered. A railway rate combines the two, in what proportions we shall see presently. It includes interest on capital already spent and charges for current expenditure on daily and hourly service.

CHAPTER II

RAILWAY CAPITAL

THOUGH the sketch of railway history given in the previous chapter is mainly British—as is but natural seeing that British railway history is not only the oldest and the most typical but also that most familiar to us—it should be noticed that all that has been said so far applies to railways however owned or managed ; to the independent undertakings of England and America and the State-subsidized and State-controlled railways of France, to the Company-worked railways of Germany and to the State-owned and State-worked railways of Australia.

Let us, then, deal first with railway capital. Continuing to use British experience as illustrative only, we find that, in round figures, the capital which the railway companies of Great Britain have raised for railway purposes is £1 147 000 000. Of this sum roughly £50 000 000 represents nominal additions to capital, this amount having been reduced by about £150 000 000 in the recent amalgamations. This is offset by an excess of premiums over discounts on capital issues to the extent of £31 500 000, and by a further £52 000 000 spent on capital account in excess of capital receipts. The resulting £1 180 000 000 may be taken as the money actually spent. In return the companies possess some 20 300 route [1] miles of line, about 865 000 vehicles of various kinds, including 24 200 locomotives; and a vast mass of miscellaneous property, factories, road vehicles, steam boats, docks, hotels, electric power stations, &c. Though the individual companies divided their capital expenditure under these various heads, the expenditure of all of them has only been so summarized since 1913. Approximately, the capital cost of the railway proper, the road and the buildings, is £878 000 000, of the rolling stock £145 000 000; of the manufacturing and repairing works and plant £21 000 000, while the remaining £136 000 000 are represented by the miscellaneous property. An examination of the Railway returns or the report of a British railway company shows that there are really two sets of railway accounts. The one relates to the railway undertaking as a whole, including all the subsidiary and auxiliary businesses in which our railway companies engage. The other applies to the railway alone. It is with this latter that we are here mainly concerned.

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[1] Railway mileage is measured in three ways : (*a*) route mileage, which is the number of miles of running line of first track, (*b*) track mileage, which is the mileage of running lines

The railroad proper has cost, we may say, £878 000 000. The first important item in this great expenditure may be taken as that for preliminary expenses. Long before the construction of a line is actually begun, careful surveys of all possible routes have to be made; then comes a much more careful survey of the route finally decided on; then troops of skilled lawyers and surveyors have to negotiate with all the public authorities and landowners who would be affected by the proposed line; those who cannot be conciliated have to be fought before the tribunal,

reduced to single track, (*c*) total mileage, which is the total of track mileage and the mileage of sidings.

Parliamentary Committee or other, empowered to sanction the construction of the railway. The outlay is necessarily great—how great no one knows, though a competent authority once estimated it at £4 000 per route mile, which for all the railways of Great Britain would mean a sum of £81 000 000 sterling. But the outlay is unavoidable and, which is more important, represents money sunk once for all and irrecoverable. If the line is never made, if when made it fails to render public service by carrying traffic, the money is as absolutely wasted as though it had been spent on prospecting for gold where no gold existed.

But we are not yet done with preliminary expenses. Land has to be bought and the owners to be paid, not only for the land actually required by the railway, but also for the injury done to the remaining and adjacent land which is cut in half by the railway fences. Land and land-damage must have cost British railway companies even more than preliminary expenses. Once more the expenditure is unavoidable ; once more it is irrecoverable.

For, having obtained the land, the first thing the railway does is to ruin it for use for any other purpose than a railway. A flat field has an embankment constructed on it ; the slope of a hill has what James Watt called ‘ a confounded gash ’ cut through it ; what was a building site in a town is excavated many feet below or raised many feet above the level of the adjacent streets.[1] And once more the expenditure on ruining the land for ordinary purposes is sunk for good and all and irrecoverable. If the railway that results from all this expenditure is not useful as a railway, it is useful for nothing else. It represents sheer waste of capital, a well sunk without finding water, a ship built and fitted that will not float. The embankments and cuttings, the tunnels and viaducts, the bridges and platforms, the culverts and ballast, all are fixed to the spot for ever. If the railway is a failure, they can neither serve any other purpose where they are, nor be taken up and employed elsewhere. Even the very buildings are of too special a nature to be adaptable to other uses.

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[1] In the case of a terminus this may not be necessary. It depends on whether the streets outside the terminus are or are not too important for their levels to be sacrificed to the level of the railway. But in the case of a railway going through a town the statement in the text is broadly true.

To sum up. The railroads of this country—the roads only, not counting movable property—represent an immobilization of some £900 000 000 of capital. The money has been found on the faith that traffic will be forthcoming in sufficient volume, and ready to pay for carriage sufficient rates, not only to cover actual transport costs of all kinds, but £40 000 000—reckoning at 4½ per cent., which is roughly the present rate—of annual interest as well. Notice, further, that the money has been found on the faith and for the use of traffic in general ; not for the use of goods specially, still less of any particular class of goods ; nor for the use of passengers or any class of them ; but for the use of traffic of every class and kind. The proportion of the total capital invested in accommodation devoted exclusively to goods or minerals or passengers is relatively quite small.

One thing more we may notice. The road has cost much to provide : it costs comparatively little to maintain. About £25 000 000 sterling per annum keeps in order £900 000 000 worth of railway, including stations and all other buildings. Evidently the proportion of the total capital invested in buildings (which every-day experience shows to be costly to keep in repair) must be but trifling, particularly as the capital was spent at pre-war prices whilst the maintenance figure is at 1923 prices.

A further point of first-rate importance must be noted here. It is a commonplace nowadays to say that the profitableness of a business depends on the possibility of keeping the works fully occupied, the capital fully employed. In the nature of things a railway undertaking can only exceptionally do this. The point can be best illustrated by specific instances. The West Highland Railway was constructed in 1900 from Helensburgh on the Clyde to Fort William, a distance of about 100 miles, at a cost of something like £13 000 a mile. If the line was to be made at all, the expenditure was necessary. Costly works were unavoidable, deep valleys had to be crossed, mountain torrents to be spanned, granite rock to be cut through, before a practicable railway could be built. If passenger trains were to run at a reasonable speed, a first-class permanent way had to be laid, stations, platforms, and signals had to be provided. If goods were to be carried at all, sidings and sheds for their accommodation must perforce be constructed. The line, as it now exists, built up to what we may call this minimum standard, is probably capable of carrying over its whole length not less than forty fully loaded trains per diem. As a matter of fact it carries more like six or eight very lightly loaded trains. And the company who built the line can hardly have expected any greatly different result. For the district cannot provide the traffic necessary to fill the line to its full capacity. In other words, a railway must in the nature of things allow for the fact that its capital will very often not be fully utilized.

Take another recent instance of a very similar kind. The Great Central Company opened in 1898 another line about 100 miles in length, their extension to London. Per mile they probably spent ten to twelve times what the West Highland line cost. Again, the expenditure was necessary, if the line was to be made at all. Road, stations, and everything had to be made up to the standard of the old-established companies, or traffic could never have been obtained in competition with them. And if an adequate and accessible London terminus could only be obtained at the cost of buying up and pulling down acres of houses, even so the expenditure had to be faced. To face the expenditure was to run a serious risk ; to refuse to face it was to doom the enterprise at the outset to permanent failure. And now the money has been spent and the line is there, ready equipped to deal with an immense volume of traffic of every kind. Naturally the traffic has grown but slowly, and even to-day after 25 years it is safe to say that, if the traffic over the London extension were doubled, there would be needed to deal with it only an expenditure on the road of new capital relatively trifling.

Once again. Imagine that the traffic of the London extension increased to the point when the present two lines needed to be increased to four ; imagine a development of the Highlands that compelled the West Highland to double its existing single line. Again, though a double line costs nothing like twice what a single line costs, there would be a great expenditure of new capital. But there would be no corresponding jump in the traffic. The old capital would become at once less remunerative, as the net receipts would be spread over the old and the new capital alike.

From this an important corollary follows. Capital, as we have seen, may remain stationary, though the traffic and the receipts therefrom increase many fold. We may turn this another way, and say that the greater the traffic earnings of a railway the smaller is the proportion of those earnings required for capital charges, and so the less heavily does the charge for capital fall on each unit of the traffic over it. Say that a railway costs £10 000 per route mile and earns £2 000 per mile per annum.[1] Assume that the working expenses amount to 80 per cent. of the gross receipts. We have then left £400 to pay interest on the capital at the rate of 4 per cent. Now suppose the traffic to double. Even assuming the working expenses still to absorb 80 per cent. of the receipts—and as we shall presently see the tendency is, other things being equal, for the percentage of expenses to fall as traffic increases —we shall have £800 per mile available as net income. Of course the whole of this may be absorbed as increased remuneration of capital. But in practice what is likely to occur is this: More than half the capital is borrowed money, or preference shares bearing a fixed rate of interest. But let us call it half, then, if the traffic of the railway is mainly non-competitive, the £800 will be divided, £200 for the £5 000 of debentures and preferences at the old rate ; say £300 for dividends on the ordinary stock at the rate of 6 per cent. ; while of the remaining £300 half will be put into improvements of the line which strictly might be charged against capital, and the other half will be given away to the public in the shape of reductions of rates and fares. If, on the other hand, the railway is either exposed to keen competition from existing lines which might take away the traffic, or liable to have new lines built to tap its territory, the probability is that the dividend will not be increased. The new free revenue will either be given away at once in reduced rates or invested in improvements ; so not only making the shareholders' dividends more certain in the present, but also giving the public, if not the hope of reduction, at least a guarantee against increase in charges in the future.

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[1] This relation between capital and income represents average present-day conditions. The pre-war ratio was 9 to 1. The capital spent at pre-war prices has remained substantially unchanged, whilst the gross income has doubled and the expenses more than doubled. An English railway before the war was one of the very few profitable undertakings in the world which took 9 years to turn over its capital.

We may even push the point further and say, quite contrary to the common opinion, that the cheaper the line—speaking of normal practical fact and not of what is theoretically to be expected—the heavier will be the charge on traffic for the use of the capital employed in its construction. For instance, the Highland Railway cost £14 500 a mile. The North London cost £330 000. The former line in 1913 devoted £42 out of every £100 of its gross receipts to the remuneration of capital, and yet only paid $2\frac{3}{4}$ per cent. of ordinary dividend. The latter company only devoted to this purpose £35 out of every £100 it received and yet paid interest at the rate of $4\frac{3}{4}$ per cent. on a capital which per mile, was twenty-three times as large.

The moral is obvious. We often hear it said that light railways ought to be constructed in poor agricultural districts, because, being cheaply built, and so having a small capital per mile on which to earn interest, they would be able to afford to carry traffic at rates below those charged by the ordinary railways. The truth is: the fact that it is necessary to give artificial encouragement to the construction of such lines implies that there is little prospect of their carrying anything but a light traffic; that therefore the capital charge, though absolutely light, will be relatively heavy, for it will need to be borne by only a few contributories. A great English line, having cost £50 000 per route mile, but having 1 000 000 tons per annum to carry over each mile,[1] may, if worked at 80 per cent. of its gross receipts, earn a satisfactory dividend, though each ton contributes to capital no more than a halfpenny per mile; an American line, having cost £15 000 a mile, but with the same volume of traffic and the same operating ratio, needs a profit of little more than half a farthing per ton-mile to do the same; while a light railway, having cost only £4 000 per mile, but with only 40 000 tons per mile, even if it also could keep down working expenses to 80 per cent. of the gross receipts, which is hardly probable, would be obliged to charge fivepence a mile in order to earn one penny as profit to meet the interest on its modest capital at the rate of 4 per cent.[2]

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[1] For the sake of simplicity the passenger traffic has been here excluded from consideration, that is, it has been assumed to be worked at a ratio of 100 per cent. Passenger traffic in many countries is worked at an expense ratio of 100 per cent. or more, but it is recognized that in this country it contributes materially to the railway profits.

[2] Two practical conclusions from the above may be noted

Not much need be said about the £145 000 000[1] invested in rolling stock. We may note, however, that while the railway line must be practically complete before it begins to carry traffic and earn revenue, this is much less the case with engines and vehicles. A considerable stock, more indeed than is likely to be required, must be provided at the outset, but additions can be made afterwards with no difficulty or extra expense ; whereas to widen a line or enlarge a station after the railway is open means not only enhanced expense but also to a considerable extent the sacrifice of capital already invested. Another distinction is that, whereas the line is built for the use of the traffic as a whole, the cost of rolling stock can, to a considerable extent, be allocated to separate classes of traffic. Rolling stock, moreover, not only needs much larger relative expenditure on maintenance, but also needs entire replacement within comparatively few years. The maintenance and renewal of the rolling stock

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here. If it is necessary for a light railway to be built independently, it ought to be permitted to charge rates and fares very much in excess of those which would be reasonable on main lines. Secondly, the proper people to build light lines are the main-line companies with which the light lines connect, for they obtain from the construction of a new branch an accession of new traffic which, while contributing to the remuneration of the old main-line capital, does not as a rule imply any expenditure on that line of new capital for its accommodation.

[1] This capital figure bears no relation to the cost or the value of rolling stock owned by the railway companies. For many years a favourite method of providing for depreciation of railway property was by adding to and improving the rolling stock out of revenue. Apart from this, it does not include a large part of the wagon stock used on the railways in this country. Roughly, there are 600 000 private owners' wagons ; even if we take these at pre-war cost and allow for depreciation they can hardly represent less than £36 000 000 capital.

owned by the railways of this country cost in 1923 about £28 700 000, or over 21[1] per cent. of its book value.

We may notice, however, that rolling stock must be substantially sufficient to meet maximum normal requirements. If those maximum requirements only exist for, say, one month out of the twelve, evidently the vehicle must earn in that single month, amongst other things, the full charge for capital and maintenance for the entire year. In other words, the charge for capital for rolling stock in that month will be exceedingly high. Hence, while it may pay a railway company to carry excursionists at a halfpenny a mile for nine months of the year, when they make use of rolling stock that would otherwise be idle, the same company will naturally not be equally ready to encourage excursion traffic at such rates in August, when it would mean building extra vehicles for its accommodation.

Of capital expenditure on docks, steamboats, hotels, canals, and other undertakings outside the railway undertaking proper, nothing need be said in a book whose object is to consider the special characteristics of railways.

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[1] The true percentage ratio between real value and cost of maintenance is probably not much more than half this figure.

CHAPTER III

RAILWAY EXPENDITURE

In ordinary domestic economy, the earning or at least obtaining an income naturally comes before the spending of it; but with a railway this is not so. Just as an hotel from the day it opens its doors must light and warm its rooms and retain a staff of servants whether guests come or not; just as an ocean liner costs per voyage almost the same whether a hundred or a thousand passengers are on board; so with a railway. And indeed more so. For an hotel can be partly closed, a steamship company can run smaller and cheaper boats in the off-season; the great bulk of the expenditure of a railway company has to go on whether the traffic to pay for it comes or not. Short of closing a line altogether, which of course means abandoning all hope of ever securing any return on the capital invested in the line, there is no way of securing that expenditure shall not exceed income.[1]

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[1] The statement in the text only partially applies to old-established railway companies with a developed and fairly constant business. And even where their newly-opened branches are spending more than they earn, the accounts do not show it. But it was officially stated that, for instance, the West Highland Railway, now absorbed in the London and North Eastern, is worked at a loss for some nine months in the year. The Eastern and Midlands Railway, before it was taken over by the Great Northern and Midland Companies jointly, used for years to show a loss on working in its accounts for the June half-year. The Golden Valley Railway was worked for some years by an independent company. Though maintenance expenditure was cut down till the line was hardly safe, the

An examination of the expenditure of English railways will show clearly the extent to which expenditure is independent of income. The companies of Great Britain are reported to have spent in 1923 on working their railways in round figures £166 100 000. This sum, in the statutory accounts of the several companies, and in the official returns founded on them and published by the Ministry of Transport, is divided among the following heads :

	£
Maintenance of way and works	25 000 000
Repairs and renewals of locomotives	12 600 000
Repairs and renewals of carriages	8 000 000
Repairs and renewals of wagons	8 100 000
Locomotive running expenses	40 800 000
Traffic expenses	54 300 000
General charges	5 700 000
Rates and taxes	7 900 000
Government duty	400 000
Compensation :	
To employees	400 000
To passengers	100 000
Damage and loss of goods	600 000
Law charges	300 000
National Insurance	1 200 000
Other expenditure	100 000
Miscellaneous	600,000
Total	£166 100 000

The above classification of expenses rests on the

outgoings always exceeded the receipts, and in the last year before the enterprise was abandoned, the ratio of expenditure to earnings was 146 per cent. It may be added—as illustrating the point in the last chapter, that a railway useless as a railway is valueless for any other purpose—that, after lying derelict for some years, the Golden Valley Line was sold to the Great Western for £10 000, a sum which can hardly have equalled the cost of the land on which it was laid.

authority of an Act of Parliament passed in 1911. These accounts, though vastly improved, still follow no logical system. We shall understand them better if we re-classify them. ‘ Rates and taxes ’ and ‘ Government duty ’ we may best strike out altogether. They represent not so much an actual expenditure as a deduction from income. ‘ Compensation ’ ought to come in where it belongs. Compensation to an injured plate-layer is properly part of the ‘ Maintenance of way ’ expenditure ; to an engine-driver is part of the ‘ Locomotive running ’ ; and so on. National Health and Unemployment Insurance cost three times as much as compensation to workmen, and should, like the compensation itself, be allocated to the account which contains the wages of the worker. ‘ Parliamentary expenditure,’ if incurred in the promotion of a new line, is properly part of the capital cost of that line ; if incurred in opposing a scheme believed to be contrary to the company's interest, is a General Charge ; in other words, is included in expenditure incurred not in any special department of work, but for the benefit of the undertaking as a whole. Similarly, legal expenses should go where they belong. Fighting a claim for compensation for damage to goods should be usually a traffic expense ; prosecuting for trespass on the line belongs to the expense of ‘ Maintenance of way ’ ; as would also litigation with, or drawing a contract with, a builder for station repairs, and so forth. ‘ Miscellaneous ’ and ‘ not allocated ’ we evidently cannot deal with, beyond saying that, so far as these items represent expenditure incurred for the benefit of the undertaking as a whole, they ought to come under ‘ General charges ’ ; if they represent expenditure incurred by or on behalf of a particular department, they ought to appear under the heading of that department.

In reconstructing our table we will omit the £8 300 000 of rates and taxes and Government duty and also the £3 300 000 composed of the small items which we have recognized as properly divisible amongst what will be our four heads, but which cannot be definitely allocated in the absence of the necessary data. The traffic expenses and locomotive running expenses, which really together make the whole of traffic expenses, shall be placed under a new heading which the Americans call ‘ Conducting transportation ’. Our table will then appear as follows. The reason for the new order in which the items appear will be given directly.

		£
A. General charges		5 700 000
B. Maintenance of way and works		25 000 000
C. Maintenance of rolling stock :		
Locomotives	12 600 000	
Carriages	8 000 000	
Wagons	8 100 000	
		28 700 000
D. Conducting transportation		95 100 000
Total, say		£154 500 000

CHAPTER IV

RAILWAY EXPENDITURE (contd.)

GENERAL EXPENDITURE AND MAINTENANCE OF WAY

In the last chapter we reduced all railway expenditure to four main heads—general, maintaining the fixed plant, maintaining the movable plant, doing the work. A good deal might indeed be said for putting the second and third heads together and grouping expenditure into

(1) Maintaining the organization ;
(2) Maintaining the plant ;
(3) Doing the work.

But the quadruple division is not only commonly accepted, but also corresponds to the practical administrative organization of railway undertakings in all countries, so it had better be adopted here. Whether we group the expenditure under three heads or four, the order as given above seems logical, as it represents the natural progression from the general to the particular ; first, the organization of an enterprise ; secondly, the maintenance of the necessary mechanism ; and lastly, the carrying into effect of the objects of the enterprise.

We begin then with the ‘ general charges,’ which in the last chapter were defined as meaning ‘ expenditure incurred, not in any special department of work, but for the benefit of the undertaking as a whole.' The amount is £5 700 000 out of £154 500 000 ; $3\frac{3}{4}$ per cent., that is, of the total.[1] The expenditure includes the fees and expenses of the directors ; the salaries and expenses of the secretary, general manager, and other officers belonging to what may be called the head-quarters' staff, with their subordinates ; the cost of auditing and accounting, law charges, management of property, insurance, so far as any of these things are not special to particular departments ; the conduct of correspondence with the shareholders and outside authorities, and the like.[2]

It will be noticed that this class of expense has but slight and indirect connexion with the amount of business done and money earned by the railway, and will hardly decrease if business falls away and profits disappear entirely. The traffic of the London, Midland and Scottish might increase 20 per cent. without adding one penny either to the directors' fees or the general manager's salary. On the other hand, if shareholders increased in number ; if the Ministry of Transport called for the publication of statistics as full as those which are required by the Interstate Commerce Commission in the United States ; though traffic receipts and capital both remained stationary, the general charges would go up, though of course the increased expenditure would relatively to the whole working expenses be exceedingly trifling. We may notice another thing—the bigger the undertaking, the less relatively the burden of ‘general charges.’ Taking, for instance, two companies coming next to one another in the Ministry of Transport returns, for 1922, we find the London Electric, with a total expenditure of nearly £1 145 000, spending under this head £48 000 or roughly 4¼ per cent., while the Lynton and Barnstaple spent nearly £1 400 out of £15 000, over 9 per cent. The Lynton and Barnstaple could not cut down this expenditure, though its ordinary shareholders had only once in the whole period of its existence received one penny of return on their capital, and then the dividend was ½ per cent. The London Electric has no need to increase it, though the company pays a 4 per cent. dividend.

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[1] In previous editions this figure was 5 per cent. It has now dropped to $3\frac{3}{4}$ per cent., not because the figure itself has fallen, in fact it has largely increased, but because the other figures have increased in a greater proportion.

[2] As a matter of fact, in English accounts 'general charges' are made to include many things which ought not properly to be so included, and do not come under the definition of the text at all ; e. g. 'Fire insurance,' the bulk of which belongs to whatever department is responsible for the insured property. The real 'general charges' account for a good deal less than $3\frac{3}{4}$ per cent. of the total expenditure.

To turn to expenditure of more serious moment. ‘Maintenance of way and works’ costs £25 000 000 per annum, or in round figures £1 200 per route mile of line. The average of £1 200 is made up of widely discrepant figures. This can be better illustrated from the figures for 1922 before the amalgamations took place. The London, Brighton and South Coast, with (according to the Ministry of Transport statistics) 457 miles, spent £831 000, or £1 800 per mile. The Highland, with 485 miles, spent £185 000, or £380 per mile, say 20 per cent. of the former sum. If we take small homogeneous railways, instead of large companies maintaining many different lines of widely varying character, we shall find much more startling discrepancies. At one end of the scale we have the Metropolitan, spending over £5 400 per annum on each of its thirty-one miles; at the other the Weston, Clevedon, and Portishead, which maintained its entire fourteen and half miles for no more than £1 715, or say £119 per mile.

It is perhaps as well, before going further, to notice that ‘a mile of line’ is a most deceptive figure. The £831 000 spent by the London Brighton and South Coast really maintains not 457 but 1266 miles of single track, viz. 100 miles single, 263 double, 47½ treble, 35½ quadruple and upwards, or 911 miles in all of running track, and 355 miles of sidings. On the other hand, the nominal 485 miles of the Highland correspond to an actual mileage of 647 miles, made up of running line 401 miles single and 84 double, and 78 miles of sidings. In other words, per mile of track the London, Brighton and South Coast spends not £1 800 but £656; the Highland not £380 but £286. The ratio of the one to the other, instead of being as 21 to 100, is therefore about 43 to 100. Even excluding siding mileage, the change in the figures as published by the use of ‘running track’ instead of ‘open line’ mileage is sufficiently noticeable. The Metropolitan thirty-one miles becomes seventy-eight miles; the fourteen and a half of the Weston, Clevedon, and Portishead increases only to fifteen. While the expenditure per mile of the latter company is reduced by £4 per mile to £115 per mile, that of the former comes down to £2 165.

The comparison between the Metropolitan, a London railway crowded not only with passengers but with goods, and the Weston, Clevedon, and Portishead, built for the pleasure traffic of a sea-side provincial town and an adjacent small sea-side town, is hardly likely to yield results of much practical value, and need not be pushed further. But the London, Brighton and South Coast and the Highland may fairly be taken as typical, the one of railways in busy and thickly populated districts, the other of a purely agricultural line. So let us compare their expenditure on maintenance in somewhat more detail. Probably the fairest basis of comparison is something between the two methods that have been adopted above. Actual length of track to be maintained must be taken notice of. On the other hand, sidings do not cost as much as running line. Perhaps, though the cost of maintenance of different classes of sidings and different classes of running line must vary greatly, we may reckon three miles of siding as equal to one mile of running line. On this basis the Brighton maintains $911 + \frac{355}{3} = 1029$ miles; the Highland maintains $569 + \frac{78}{3} = 595$ miles. Let us call these assumed miles for convenience hereafter 'unit miles.' Per unit mile, then, the Brighton spent in 1922 on maintenance £808, the Highland £311. In round figures, that is, a line with very heavy traffic where labour is dear cost a little more than two and a half times as much per mile to maintain as a line with light traffic in a district where labour is relatively cheap.

But when we come to take into account the traffic carried over the line, the comparison is changed entirely. Reckoning by mere numbers of passengers and tons of goods carried, we find that the Brighton carried thirty-three times as many passengers, nine times as many tons of coal, eighteen times as many tons of other minerals, and three and a half times as many tons of general merchandise as the Highland. But we cannot compare on this basis, for in Scotland the traffic was certainly carried on the average longer distances (required, that is, the maintenance of more miles of line) than in the Brighton area. The average length of haul of freight on the London, Brighton and South Coast Railway was about 30 miles compared with 94 miles on the Highland. Further, the London, Brighton and South Coast has 1 100 ton miles of freight per route mile per working day against 600 on the Highland. But as regards the passenger traffic, which accounts for such an important part of the Brighton revenue, we have no figures to help us. But we do know that each unit mile of the Brighton earned in the year £6 260 ; of the Highland £1 980. The rich company, that is, spent two and a half times as much per mile on maintaining its road, and earned three and a fifth times as much. Of course earnings, which represent the product of traffic carried multiplied by rates charged, are not the same thing as work done. But in this case we can confidently guess—that, if a unit mile of the London, Brighton and South Coast earned three and a fifth times as much as a unit mile of the Highland, it carried at the very least three and a fifth times as much traffic. For we know that the English line ran more than four times as many train miles (12 100 000 against 2 750 000), and we can hardly think that the normal train is less heavily loaded in Surrey and Sussex than in the Highlands of Scotland. In the case of the freight, the ton-mile figures show that a London, Brighton and South Coast train carried 105 tons net load, and the Highland train only 67 tons. We can feel reasonably certain, moreover, that average fares were lower in England, with its highly developed system of cheap passenger fares (workmen's tickets, season tickets, excursion tickets, &c.), than in North Scotland, where the bulk of the traffic is at normal fares. On the whole we shall probably not err in saying that the traffic density in the former case is fully four times that in the latter. In other words, cost of maintenance on the heavy line is two and a half times as great, but traffic density is fully four times as great, therefore per unit of traffic cost of maintenance on the rich line is only five-eighths of that on the poor line.[1]

Fortunately we can confirm our English conjectures by the precise figures published by the railways of the United States. The Pennsylvania Railroad Division, the nucleus of the great Pennsylvania Railroad Company's system, with probably the heaviest traffic in the world, cost in 1900 £800 per mile of open line to maintain. The traffic density was 5 250 000 traffic miles per route mile. That is, cost of maintenance per mile chargeable against each traffic unit passing over that mile was ·038*d*. The Southern Pacific, with only two first-class towns (San Francisco and New Orleans) on all its 7 500 miles of line, spent no more than £218 per mile, little more than one-fourth; but the traffic density was no more than 750 000, or one-seventh.

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[1] The unit of traffic is one ton of goods or one passenger carried one mile; or shortly, the ton mile and the passenger mile. For many purposes, at least under English conditions, one may treat ton miles and passenger miles as equivalent and add them together to produce traffic miles. Traffic density is the number of traffic miles over each mile of line per annum, in other words the quotient given by dividing the total traffic miles run by the length in miles of the railway. Of these figures, practically universal in other countries, ton-miles are now regularly estimated and published in this country, whilst passenger-miles are published occasionally.

Consequently, the cost of maintenance chargeable against each traffic unit was ·075*d.*—practically double the Pennsylvania cost.[1]

So we come to the conclusion that the same thing is true with reference to cost of maintenance which we have already seen to be true in regard to charge for the remuneration of capital ; cost increases absolutely as traffic increases, but increases at a much slower ratio. In other words, the charge per unit of traffic decreases. Once more, so far as maintenance expenditure is concerned, it is the lines which spend most which can afford to carry traffic cheapest.

Now let us turn to another point. What is the cause of the expenditure ? How is the increase of expenditure, which we have seen is incurred as traffic increases, due to increased wear and tear, and how far is it merely the result of exposing a larger and more costly plant to wind and weather ? The English accounts hardly give sufficient detail to enable us to answer this question. Here is a specimen taken from

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[1] The American figures in the text are given per route mile, not per unit mile. Per unit mile they would be roughly as follows :—

	Pennsylvania Railroad Division.	Southern Pacific.
Unit mileage . .	3 264	8 100
Cost of maintenance .	$6 834 000	$8 261 000
Cost of maintenance per unit mile . . .	£420	£204
Traffic density per unit mile	2 500 000	600 000
Cost of maintenance per traffic unit. . .	·04*d.*	·08*d.*

the London and North Eastern Railway accounts for the year 1923 :—

ACCOUNT No. 10. ABSTRACT A. MAINTENANCE AND RENEWAL OF WAY AND WORKS.

				Year 1923.		
	£	s.	d.	£	s.	d.
Superintendence :—						
Salaries	330 295	7	6			
Office expenses, &c. . . .	33 193	1	3			
				363 488	8	9
Maintenance of roads, bridges, and works :—						
Earthworks	139 606	1	6			
Bridges, tunnels, culverts, retaining walls, and other works .	398 703	6	3			
Roads and fences . . .	355 887	15	0			
				894 197	2	9
Maintenance of permanent way :—						
Renewal of running lines :—						
Wages	232 200	16	3			
Materials	644 858	6	9			
Engine power and wagon repairs	36 391	19	6			
				913 451	2	6
Repair of running lines and sidings :—						
Wages	2 182 751	7	8			
Materials	680 680	17	8			
Engine power and wagon repairs	72 549	4	10			
				2 935 981	10	2
Maintenance of signalling . .				588 044	13	0
Maintenance of telegraphs . .				197 568	17	5
Maintenance of electric track equipment				10 282	12	5
Maintenance of stations and buildings :—						
Stations, depots, and offices . .	690 137	10	5			
Engine sheds	92 051	9	1			
Carriage sheds	3 652	2	6			
Locomotive workshops . .	36 222	15	6			
Carriage workshops . . .	20 506	13	2			
Wagon workshops . . .	17 437	1	1			
Other buildings	21 251	5	9			
				881 258	17	6
				6 784 273	4	6
Transfer from depreciation funds and renewal suspense accounts . . . . Cr.				58 365	7	3
Total				£6 725 907	17	3

RETURN No. X.—Maintenance and Renewal of Way and Works (Abstract A).

Description.	Unit.	Quantity.
Quantities of principal materials used :—		
Ballast	Cubic Yards	626 541
Fencing	Miles	180
Rails	Tons	61 901
Sleepers	No.	1 264 162
Miles maintained :—		
Miles of road	Miles	6 403
Miles of road reduced to single track :—		
(*a*) Running lines	,,	11 440
(*b*) Sidings	,,	5 099
Miles of track renewed	,,	272

Of the main heads of expenditure we may safely say that repair of buildings is mainly due to wind and weather; that maintenance of bridges, tunnels, culverts, viaducts, and the like—except so far as heavier traffic may necessitate the replacement of light girders by stronger ones—is also mainly due to the same cause.[1] The repair of roads[2] and fences is clearly due to causes which have no relation to railway traffic. 'Repair and renewal of permanent way,' more than half the whole expenditure, is more difficult to apportion. Rails wear out more than rust out. The proportion of wear to rust is however higher on main lines than on branches. On steep gradients and sharp curves on lines of heavy traffic rails are worn out before they have time to rust. Sleepers rot rather than wear. The constant jar of passing trains is responsible for the tightening up of joints and the repacking of ballast, which forms a large portion of the platelayer's daily task. On the other hand, the ballast itself is washed away or rendered unfit for its purpose by weather. The maintenance of fences, the cleaning of ditches, and the like, have nothing to do with the amount of traffic, nor has the daily inspection of the line, a serious item in maintenance costs.

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[1] 'Maintenance,' of course, includes replacement of obsolete buildings and works. They also include additions not charged to capital, a percentage of the whole that must vary very widely on different lines. But in any case it is clear that betterments are even less due to wear and tear than are repairs proper.

[2] Roads in railway accounts mean ordinary carriage roads, either public roads, which, where they cross the railway on bridges, the company is required by law to maintain, or private roads in station yards.

If we turn to the figures for the Pennsylvania Railroad Division referred to above, we find our 'Repair and renewal of permanent way' split into many items. The maintenance of the roadway is distinguished from maintenance of the track; the cost of new rails, sleepers, ballast, &c., is given separately, even depreciation is split. The English accounts have on the other hand one substantial advantage in the separation of cost of wages from that of materials.

Without pursuing the subject into greater detail, it is safe to say that under British conditions less than two-thirds of the repair and renewal is due to wear, and at least one-third is independent of the traffic. If we applied this proportion to the London and North Eastern figures we should then have under 'Repair and renewal of permanent way' about £2 560 000 attributable to wear, £1 280 000 attributable to weather. Adding in then the expenditure under the other heads, we should have £3 800 000 for weather as against only £2 560 000 for wear. That is, about three-fifths of the maintenance-of-way expenditure is independent of the traffic passing over the line; in other words, is only indirectly and remotely affected by an increase of traffic.

We shall recur to this point more at length hereafter. Meanwhile we may notice this, that a railway manager, calculating whether additional traffic—offered to him presumably at an unusually low rate—will pay him or not, is entitled, in estimating the probable extra expense which the additional traffic will cause, to leave out of account a good deal more than half of his permanent-way expenditure as being unaffected by the volume of traffic.

One other point we may notice in conclusion. With the exception that a portion of the expenditure on stations and buildings can be allocated to passengers and goods respectively, the whole of the expenditure on maintenance of way is incurred not for any separate class of traffic, still less for any of the separate components of that class, but for the traffic of the line as a whole. If passengers ceased entirely to travel for a twelvemonth, the expenditure could not be greatly reduced, though of course it might be postponed to a more convenient season. If the goods ceased entirely, and the passengers were left in sole possession of the line, the possible reduction in expenditure would be even smaller. Evidently, in the cases supposed, the goods rates or the passenger fares, as the case might be, would have to find the whole of the money to maintain the line. Otherwise it would be closed.

In practical fact, of course, both classes of traffic go on alongside. But it may well be that in certain countries, or at least on certain railways, the main part of the maintenance expense is charged upon one class of traffic. In a poor country of great distances like India fares must be very low, or very few passengers could afford to travel at all. In a small rich country like Holland, passengers can and will pay relatively high rates per mile ; while, in competition with the canals which seam the country in every direction, goods traffic in any volume can only be attracted by very low rates. And to the railway manager, provided his road is maintained somehow, it matters not whether it be at the expense of passengers or goods.

CHAPTER V

RAILWAY EXPENDITURE (*contd.*)

ROLLING STOCK AND TRAFFIC

Not much need be said as to the expenditure on maintenance and repair of rolling stock. We saw above[1] that the book value of all the rolling stock owned by the Railway Companies in the country—engines, carriages and wagons—was £145 000 000 ; in other words, it represented about 12 per cent. of the total capital. We saw also[2] that the cost of repairs and renewals was nearly £28 700 000 per annum ; or 21·26 per cent. of its book value, 15 per cent. of the total expenditure, and 12 per cent. of the total traffic receipts of the railways.[3] It will be useful both to check and to amplify this general statement by using the somewhat more detailed figures of one particular company. The Great Western Railway accounts for the year 1923 show as follows : total capital expended on the railway, £144 000 000, out of which rolling stock is set down for £19 600 000, 13·6 per cent. On maintenance and renewals of rolling stock there was spent in the year £4 247 000 ; that is, over 21 per cent. of its book value. This expenditure equalled over 13 per cent.

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[1] See p. 13.

[2] See p. 21.

[3] A reference to pp. 21, 22, will show why the actual expenditure on maintenance of rolling stock bears so large a proportion to the capital cost as it stands in the books.

of the gross receipts, over 16 per cent. of the total expenditure. Dividing the £4 247 000 spent under the three main heads, we find that repairs and renewals of engines cost £2 123 000, say 50 per cent. of the total spent on rolling stock ; those of carriages, £1 136 000, or 27 per cent. ; wagons, £988 000, or 23 per cent.

The fact that the Great Western spends each year as much in maintaining rolling stock entered in the books as costing £19 600 000 as it does on maintaining lines and works entered as costing £120 000 000 strikes us at the outset. The difference in rate clearly implies more than a difference in the character of the property maintained. No doubt vehicles wear out faster than banks or bridges, or even stations, but scarcely six times as fast. Clearly much of the expenditure on rolling stock is caused not by patching up old engines and carriages, but by replacing them by new ones. And this replacement is necessary because the stock, though perfectly sound and roadworthy, is out of date and no longer adapted to modern requirements.

The distinction is of some importance, for this reason. The expenditure on rolling stock so far as it is caused by wear and tear evidently will increase in direct proportion to the strain of the work imposed upon it. But an engine or carriage will grow antiquated just as soon if it remains in a shed as if it is constantly on the line. The moral, of course, for the practical railway manager is to get all the mileage he can out of his rolling stock, so that the time when it is worn out may arrive at least as soon as the time when it is out of date. For the student the moral is, that so far as rolling-stock expenditure represents replacement of material, obsolete though not worn out, so far it is independent of work done. In other words, rolling stock which would otherwise be unemployed can be profitably employed in carrying traffic if—other things being provided for—the receipts cover the expenditure for maintenance proper though not for replacement.

There is another point. Wear and tear is the result of movement. An engine, a carriage, or a wagon deteriorates practically equally as fast whether it runs light or fully loaded. Therefore, if the stock has to run at all, maintenance cost remains the same however lightly it is loaded. Evidently under this head lines with heavy traffic have once more an advantage over lines in poor districts. Evidently also, in calculating how low he can afford to reduce his rates in order to fill wagons that otherwise would run half empty, the practical railway manager can afford to leave altogether out of account the cost of rolling-stock repairs, so far at least as stock actually used on existing trains is concerned.

Of the total sum spent about half is, as has been said, spent on the engines. Now engines are nominally divided into goods and passenger classes, but they are in practice very largely interchangeable. Goods engines may not haul fast expresses, nor express passenger engines coal trains ; but each of them will eke out their own proper work with the haulage of the large intermediate class of fast goods and slow passenger trains. Further, a large part of the expense of the repair shops, the machinery and standing charges, is incurred for all classes of engines alike. So, taking engine maintenance expenses in the lump, we may say that a considerable portion of them is not directly allocable as between goods and passengers. Allocations have been made at various times on assumed bases and have proved useful, but it has been found that a basis which is reasonable in one case may lead to obviously erroneous results in another. In other words any allocation must rest to a considerable extent on a basis of figures many of which are estimates.

With carriage repairs and renewals 4·37 per cent. of the total working expenses, and wagon repairs and renewals 3·80 per cent., we at length and for the first time reach a heading of expenditure, absolutely though not relatively considerable, which we can allocate to one portion of the traffic only. But even here we cannot go beyond the broad division into passengers and goods.[1] A first-class vehicle carries traffic of very different kind when in the morning it conveys a season-ticket holder paying at the rate of about ½*d.*, and in the afternoon the season-ticket holder's wife at the ordinary fare of 2½*d.* per mile. So, too, a goods truck may carry one day shipping traffic at a minimum rate, and the next miscellaneous 'smalls' at a rate per ton many times as high.

We may now sum up the conclusions which we have reached so far. General expenses and maintenance of way must be allocated as between goods and passengers wholly on a basis of assumption. Further a considerable measure of assumption is implied even in the allocation of the costs of maintenance of locomotives. We have analysed an expenditure of £59 500 000 (6 + 25 + 28½), and found that roughly three-quarters of it is incurred on behalf of the traffic as a whole, and little over one-fourth can be allocated even to the extent of dividing passengers from goods, and that this quarter itself is not practically susceptible of any further or more detailed allocation.

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[1] Fish trucks, carriage trucks, milk vans, and the like, are as a matter of actual practice included not under wagon but under carriage repairs, because though they do not carry passengers they run on passenger trains, and their earnings are included in passenger receipts.

There remains to be dealt with the expenditure of £95 000 000, 61 per cent. of the total. This is the sum actually spent in doing the work, for which all the expenditure hitherto dealt with has been only a necessary preliminary. The sum is made up, as explained earlier,[1] of what are called in England 'traffic expenses', £56 000 000, and 'locomotive running expenses', £41 000 000. Clearly, we must combine them if we wish to arrive at the real cost of 'conducting transportation'.

Let us first check our general figure by instances of particular companies. Taking two of different types, as the one is largely a goods, the other mainly a passenger railway, we find that the London, Midland and Scottish spent, out of a gross 'railway' outlay of £61 290 000, on 'traffic expenses', £21 840 000; on 'locomotive running', £15 940 000; together, £37 580 000, or 61 per cent. The Southern, out of a gross 'railway' outlay of £17 830 000, spent £5 580 000 and £4 450 000 respectively; together, £10 030 000, or 57 per cent.[2]

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[1] See p. 26.

[2] Traffic expenses are naturally lower on a passenger line, for passengers load and unload themselves.

English railway accounts still fail to show efficiently where the money goes, though the present form is a great improvement on its predecessor. Here is a portion of the last London and North Eastern Railway accounts bearing upon the question :

ACCOUNT No. 10. Abstract C. Locomotive Running Expenses.

				Year 1923.		
	£	s.	d.	£	s.	d.
Superintendence :—						
Salaries	259 839	0	1			
Office expenses	23 787	8	3			
				283 626	8	4
Steam train working :—						
Wages connected with the running of locomotive engines	6 456 236	1	8			
Fuel	4 706 539	16	8			
Water	282 194	13	3			
Lubricants	147 537	9	10			
Other stores, including clothing	203 253	6	9			
Miscellaneous	155 343	5	6			
				11 951 104	13	8
Electric train working :—						
Wages of motormen	14 958	15	1			
Electric current	49 490	6	10			
Lubricants	566	11	5			
Other stores, including clothing	2 372	0	10			
				67 387	14	2
Petrol rail auto-car working :—						
Wages of motormen	1 655	7	5			
Petrol	944	13	8			
Lubricants	39	13	2			
Other stores, including clothing	23	16	2			
				2 663	10	5
				12 304 782	6	7
Deduct :—Engine power supplied to and by the Company				522 152	16	0
			Total	£11 782 629	10	7

ACCOUNT No. 10. Abstract D. Traffic Expenses.

				Year 1923.		
	£	s.	d.	£	s.	d.
Salaries and wages :—						
Superintendence	1 180 013	2	9			
Stationmasters and clerks	3 570 383	19	9			
Signalmen and gatemen	1 839 397	19	11			
Ticket collectors, policemen, porters, &c.	4 188 966	7	5			
Guards	1 371 260	5	8			
				12 150 021	15	6
Fuel, lighting, water, and general stores				617 004	7	8
Clothing				152 431	7	8
Printing, advertising, stationery, stamps, and tickets				456 125	9	10
Wagon covers, &c.				240 701	17	10
Expenses of joint stations and junctions				Cr. *7 791*	*13*	*4*
Cleansing, lubricating and lighting of vehicles				668 471	12	5
Shunting expenses (other than mechanical) :—						
Wages	1 199 100	17	6			
Other expenses	58 421	7	6			
				1 257 522	5	0
Working of stationary engines, hoists, cranes, &c.				271 477	14	6
Coal, &c.—Tipping expenses				5 358	6	1
Railway clearing house expenses				253 044	12	10
Miscellaneous expenses				92 938	7	4
			Total	£16 157 306	3	4

Outside the British Isles, English railway-men have expanded and improved the rudimentary forms to which they were accustomed at home, till it has become possible to extract valuable information from them. What our English Abstracts C. and D. have grown to in Argentina, is shown in the report for the year ending June 1923, of the Central Argentine Railway Company, Limited, which is reprinted at length on pp. 50–3.

Here, though the influence of the traditional English forms has militated against simple and logical arrangement, and though Argentine and English local conditions are widely different, we get a much better idea of the relative expenditure for different classes of service.[1] Roughly we may group the expenditure somewhat as follows :—

Locomotives.
Other train expenses.
Stations and yards.
Watching and signalling on open line.

It will be noticed that in all this detail only seven very minor heads, affecting an expenditure of some £100 000 out of nearly £2 960 000, can be said to belong definitely either to passengers or to goods.

More practically convenient in many respects is the American grouping. The subjoined statement (slightly compressed) is taken from a railway more nearly comparable with English lines than perhaps any other—the New York, New Haven, and Hartford—which serves the oldest and most thickly populated part of the country, and derives half its income from passenger traffic.

TRANSPORTATION.

	Year 1923. $
Superintendence	1 594 310
Dispatching trains	360 499
Station employees	8 442 664
Weighing, inspection, and demurrage bureaus	3 929
Coal and ore wharves	153 747
Station supplies and expenses	618 938
Yardmasters and yard clerks	1 248 434
Yard conductors and brakemen	2 822 681
,, switch and signal tenders	356 026
,, enginemen	1 418 482
,, motormen	176 041

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[1] The separation in the Argentine report of wages of drivers and firemen from those of the men employed in the running sheds and in the work of coaling engines is a valuable piece of information which might well be given at home.

	$
Fuel for yard locomotives	2 007 402
Yard switching power produced	62 251
,, ,, ,, purchased	53 054
Other supplies for yard locomotives (three items)	130 545
Enginehouse expenses—yard	539 224
Yard supplies and expenses	60 194
Operating joint yards and terminals	1 760 038
Train enginemen	3 666 802
Train motormen	685 988
Fuel for train locomotives	8 553 729
Train power produced	886 777
Train power purchased	958 486
Other supplies for train locomotives (three items)	644 194
Enginehouse expenses—train	2 154 674
Trainmen	5 485 355
Train supplies and expenses	1 555 015
Signal and interlocker operation	1 173 493
Crossing protection	951 527
Drawbridge operation	131 115
Telegraph and telephone operation	183 564
Operating floating equipment (six items)	1 375 861
Stationery and printing	416 588
Other expenses	56 096
Operating joint tracks and facilities	591 769
Insurance	74 813
Clearing wrecks	256 065
Damage to property (three items)	338 282
Damage to live stock on right-of-way	1 632
Loss and damage—freight	277 131
,, ,, ,, —baggage	14 438
Injuries to persons	785 235
Total transportation	$53 037 108

It will be noticed that very few of the items have any specific reference to passenger or goods traffic exclusively.

The point must not be pushed too far. No doubt a much larger portion of the expenditure could be apportioned. A driver drives either a passenger or a goods train, and his wages might be apportioned accordingly; though if, for instance, he is paid on the basis of a forty-eight hours' week, out of which he is eighteen hours on passenger work, twenty-five hours on goods work, and the rest of the time idle, the apportionment of the five hours must be estimate. The same thing applies to all the train staff. Station staff in large stations is assigned exclusively to goods or to passengers as the case may be. But at country stations a station master or porter spends his employed time partly on goods, partly on passenger work, and during the residue of the time, while he is waiting for work to come, his wages cannot fairly be debited against either department. The expense of signalmen and watchmen evidently belongs to the traffic as a whole. We may take it, then, that of the expenses of conducting transportation a considerable part is non-apportionable ; the rest might be apportioned, but in fact is not, even where accounts much more detailed than our English accounts are published.

The fact is surely not without significance. The accounts of the Central Argentine have been elaborated from the rudimentary English forms with the express object of enabling directors and shareholders at home to exercise some supervision over the spending of their money in Argentina. The form of American accounts is the result of long discussion between trained economists and statisticians representing the Federal Government and a committee of the most expert accountants of the great railway companies. Surely then we are entitled to conclude that if apportionment of expenses had been easy, it would have been made ; even if it had been possible, though difficult, it would have been done, had there been any great practical advantage to be gained by the process.

ABSTRACTS OF EXPENDITURE ON REVENUE ACCOUNT.

E.—Motive Power—Steam and Electric—Running Expenses.

Year ended 30th June 1922. Details. £	s.	d.	Totals. £	s.	d.		Year ended 30th June 1923. Totals. £	s.	d.	Details. £	s.	d.
			64 993	8	7	Superintendence	63 792	13	4			
57 496	9	0				Salaries				58 220	18	1
7 496	19	7				Materials and general expenses				5 571	15	3
			555 732	9	10	Drivers and firemen	538 029	15	11			
490 552	5	8				Wages				473 625	15	11
17 559	10	6				Premiums				16 770	12	9
47 620	13	8				Travelling allowances				47 633	7	3
			10 117	15	2	Motormen.	10 783	17	8			
						Wages and premiums						
			1 493 077	18	11	Fuel.	879 531	3	4			
1 116 001	18	1				Coal				641 331	15	2
135 136	13	9				Wood				42 660	14	2
215 071	6	3				Oil				175 194	6	3
22 923	13	6				Coalers—Wages				17 318	1	1
3 944	7	4				Coalers—Equipment				3 026	6	8
			100 071	14	0	Electric current	83 282	14	7			
			63 848	17	0	Other materials for running.	47 354	2	8			
39 406	10	9				Lubricants				21 859	3	6
9 685	0	8				Other materials				9 553	11	8
14 757	5	7				Loose tools and equipment				15 941	7	6
			413 495	8	0	Running sheds and motor revising sheds	413 693	9	0			
309 051	11	8				Wages				330 013	5	11
104 443	16	4				Materials and general expenses				83 680	3	1
			8 916	17	4	Uniforms	3 416	14	10			
			14 754	9	8	General expenses	10 353	6	9			
			4 750	6	9	Water, superintendence	4 952	15	2			

3 501 4 3		Salaries		3 891 14 10
1 249 2 6		Materials and general expenses		1 061 0 4
	55 405 6 8	Water and pumping	43 555 17 8	
23 976 4 5		Wages		14 958 17 3
384 17 7		Water dues		7 607 8 6
24 779 2 3		Materials and horse-keep		17 097 18 0
6 265 2 5		Water transport		3 891 13 11
	19 426 13 8	Repairs to pumps, &c.	23 591 19 6	
9 192 16 8		Wages		9 828 14 2
3 693 14 0		Materials, &c.		6 055 7 7
6 540 3 0		Renewals fund		7 707 17 9
	£2 804 591 5 7		£2 122 338 10 5	

F.—Vehicles—Steam and Electric—Running Expenses.

Year ended 30th June 1922. Details. £ s. d.	Year ended 30th June 1922. Totals. £ s. d.		Year ended 30th June 1923. Totals. £ s. d.	Year ended 30th June 1923. Details. £ s. d.
	6 086 10 3	Superintendence	6 321 17 8	
5 263 16 1		Salaries		5 514 3 6
822 14 2		Materials and general expenses		807 14 2
	53 969 17 8	Revisers and greasers. Wages and expenses.	43 934 9 5	
	659 10 6	Uniforms	434 15 3	
	21 902 14 4	Lubricants	11 468 12 8	
	1 052 12 7	Materials	765 9 1	
	1 653 17 1	Tools and equipment	2 375 16 10	
	3 465 17 6	General expenses	3 808 7 2	
	1 12 5	Renewals Fund	1 12 6	
	£88 792 12 4		£69 111 0 7	

ABSTRACTS OF EXPENDITURE ON REVENUE ACCOUNT (*contd.*).

G.—Traffic Expenses.

Year ended 30th June 1922. Details. £	s.	d.	Totals. £	s.	d.		Year ended 30th June 1923. Totals. £	s.	d.	Details. £	s.	d.
			167 049	15	8	Superintendence	174 149	7	3			
146 070	3	3				Salaries				158 258	1	8
20 979	12	5				Materials and general expenses				15 891	5	7
						Stations—						
			1 024 981	11	10	Wages	1 018 478	0	0			
429 164	18	6				Station masters and clerks				428 989	18	10
66 548	1	5				Telegraph clerks and messengers				61 434	9	4
79 517	3	10				Signalmen				81 941	5	8
123 940	4	7				Shunters				124 972	1	5
325 811	3	6				Labourers, &c.				321 140	4	9
			97 967	17	9	Materials, &c	84 995	0	5			
45 492	4	4				Books, forms, and stationery				39 769	12	2
46 560	0	2				Lighting stations and signals				40 971	12	1
5 915	13	3				General materials and other consumable stores				4 253	16	2
			22 276	10	3	Furniture and equipment	21 229	5	7			
			15 648	0	0	Expense allowances of station staff	14 711	18	1			
			6 304	5	3	General expenses	4 245	15	10			

	358 687 19 3	Trains	358 053 2 6	
93 556 18 9		Train staff—Wages		205 262 9 11
44 990 16 6		Train staff—Expense allowances		47 583 4 5
35 203 11 11		Lighting of coaches		30 161 13 2
32 058 14 1		Cleaning of coaches		30 303 4 2
2 446 16 11		Cleaning and disinfecting of wagons		2,861 7 8
16 645 12 2		Tarpaulins, &c.—Maintenance and renewal		14 079 10 6
5 334 14 5		Materials and equipment		4 794 0 9
9 749 17 10		Bed attendants—Wages		10 797 3 5
3 634 19 2		Bed attendants—Expense allowances		3 287 9 5
15 065 17 6		Sleeping coach equipment		8 922 19 1
	31 102 3 8	Uniforms	24 240 12 0	
	49 857 12 3	Level crossings	49 957 14 3	
		Wages, materials, &c.		
	4 024 9 6	Time tables	5 381 16 0	
	17 398 13 7	General expenses	18 316 1 6	
	Cr. 19 896 18 7	Joint facilities	Cr. 18 374 6 8	
	£1 775 402 0 5		£1 755 384 6 9	

We have seen why an apportionment is difficult. It would imply an examination and dissection of the time-sheets of every engine and of the bulk of the engine, train, and station staff; the same process would have to be gone through with supplies, and even at the end a large part, both of wages and supplies, would be left over which could only be apportioned on the basis of an arbitrary estimate. And when done, where would be the advantage? Engines and staff have been provided because there was a prospect of their being profitably employed, because a certain minimum of stock and staff was necessary to keep the organization going, ready to deal with traffic as it comes; what matters it if in August the bulk of a porter's time is devoted to handling passengers and their luggage, in November to handling goods?

Once more, the traffic expenses of a full train are little more than those of an empty train; the expenses of a busy station are much less proportionately than those of a small station; the expenses of watching and signalling are practically constant. Once more we see the advantage which the crowded line has over the line with light traffic. Once more we see that the manager can afford, in estimating the minimum rate at which it will pay him to attract new traffic, to leave out of account the bulk of the traffic expenses, as the new traffic will not very greatly increase them.

As the result, then, of our inquiry into railway expenditure the same conclusions seem naturally to emerge as we reached in the case of railway capital.

1. The bulk of the expenditure is incurred on behalf of the traffic as a whole; only a small portion can be even allocated so far as to say that it belongs wholly to passenger or wholly to goods; only the nearest fraction

can be assigned to particular groups of passengers or classes of goods; for individual passengers or single consignments of goods practically no expense is incurred at all.

2. Expenses increase as traffic increases, but by no means in direct proportion. Certain expenses—for instance, maintenance of works—hardly increase at all; others—for instance, terminal handling of goods at big stations, where the staff can be normally kept fully employed—increase almost as fast as the traffic; the bulk of the expense is intermediate between these two extremes. On the whole, a common and probably roughly accurate estimate is to say that half the total expense is fixed; half varies with the traffic. That is to say, if it costs x to deal with 1 000 000 units of traffic, 5 000 000 units will cost, not $5x$, but $\frac{1}{2}x + (\frac{1}{2}x \times 5) = 3x$. Therefore the heavier the traffic, the lower (the return on capital remaining the same) need be the rate.

Turning this proposition round, we have a converse proposition, equally true and equally fundamental—the lower the rate the heavier will be the traffic. This leads us naturally to the question which we have next to consider, how a railway earns its income.

[The long controversy in America as to the separation between passenger and freight expenses is instructive. The Interstate Commerce Commission was established in 1887. It now has practically absolute control over all rates; and it tends more and more to endeavour to fix rates on the basis of cost of service. In the early days it required the companies to divide their expenses between passengers and freight, but left to each company the power to allocate the expenses common to both classes as it pleased. In the result it appeared that the methods adopted varied widely, that a large part of the total was allocated on arbitrary estimates, and that consequently the figures obtained were not of much statistical value. So after a few years the Commission ceased to require the division to be made. At a later period one great company after another took to separating freight and passenger expenses for its own information. And after the War the Commission took up the matter afresh, and once more required separation on the basis of rules which it laid down, after elaborate investigation of the whole subject and after testing the results of various methods of apportionment that had been actually employed. But this separation, though made in the returns furnished to the Commission, is not required to be made, as we have seen, in the reports issued to the shareholders, presumably because, while the return is partly estimate, a financial report should deal with facts.

The information obtained is doubtless of considerable statistical interest. It furnishes an answer to the question—important from the 'cost of carriage' point of view—as to the comparative profitableness of freight and passenger traffic. But if the result is to show that, on the average American railway, passenger traffic does no more than pay expenses and that the whole of the net revenue is earned from freight, what is the practical effect? Theoretically it would be said: 'Put up the passenger fares, and reduce the freight rates in corresponding measure.' But the average American fare per mile, which is more than 50 per cent. above the English average, is probably as high already as the traffic can bear. If then fares cannot be advanced, and if in the interest of the community passenger service cannot be curtailed, theory must yield to practical facts. Freight must continue to bear the whole burden of capital.

To discuss the matter in further detail is beyond the scope of this book. But though the remark may seem out of place in a book devoted to theory, a doubt may be suggested whether in the end the information now furnished will be found to be worth the very considerable cost incurred in obtaining it.]

CHAPTER VI

RAILWAY INCOME

SOME IMPRACTICABLE METHODS OF CHARGING

The foregoing chapters have dealt with the nature of railway undertakings from the point of view both of capital and of revenue expenditure. We have seen that the distinguishing features are, *qua* capital, its magnitude and its irrecoverable nature ; *qua* both capital and current expenses, the fact that the money is spent for the establishment and maintenance of the undertaking as a whole, and has but slight connexion with special categories and individual items of traffic.

Once we have grasped these fundamental facts, we can promptly get rid of not a few popular fallacies as to the equitable basis of railway rates. Volumes have been written to show that railway rates ought to be based on cost of carriage. For two generations Parliamentary Committees and Royal Commissions have been implored to compel English railways to charge on this basis. Whether it is desirable that railway rates should be so based is a question to which we shall need to recur at a later stage. It is simpler to say at this point that such a basis is impossible, as no one knows, or can know, what the cost of carriage is. To begin with, the phrase itself is ambiguous. Cost of carriage of a particular item may mean the additional cost of carrying that item ; this is normally so small as to be negligible. It may mean the additional cost *plus* a fair share of the standing costs of the undertaking. The *plus* figure is nothing more positive than an arbitrarily estimated proportion of a sum that can only be ascertained very roughly, even by a trained railway statistician with access to all the accounts and returns he chooses to call for. Accountants, if required to go into detail, would differ considerably as to what standing costs were affected by a new item of traffic ; in other words, to which of the innumerable heads of standing cost the new item ought to be called on to contribute its proportion. Assume it to be decided that the item in question ought to contribute something to a particular category of costs, what then is its equitable proportion ? The question is no longer one for an accountant : it involves social, economical, and political considerations ; and each sociologist, economist, and politician would answer it differently. Clearly, there is here to be found no positive objective basis for a system of railway rates. As we shall see presently, all these considerations have to be and are taken into account in fixing railway charges. At this point we are only concerned to note that, the nature of railway business being what it is, rate fixing cannot be an exact science ; to claim that rates shall automatically be fixed on the basis of cost of carriage is to claim what is impossible.

A further practical point may also be noticed. Rates must be fixed in advance. It is only afterwards that cost can be even approximately known. Let a rate be fixed at, say, 2*s*. per ton for a certain traffic for a distance of, say, twenty miles, on the assumption that at that rate 1 000 tons of traffic will pass. If in fact only 500 tons are sent, the rate will leave—for reasons that were explained in previous chapters—much less profit than was expected. If 5 000 tons are sent, the profit will be so much larger that a considerably lower rate would have given more than all the anticipated profit. In other words, assuming the intention to have been to fix an averagely profitable rate, had it been supposed in advance that only 500 tons would go, the rate would have been much higher; had it been supposed that 5 000 tons would be sent, the rate would have been very much lower. But a higher rate might have made the traffic even less than 500 tons; a lower rate might have made it even more than 5 000. How much less, or how much more, no one can know except by actual experience. It comes, therefore, to this: that, even if it were, which it is not, possible to say what it would cost to carry x units of traffic, no one could so fix a rate as to obtain precisely that cost *plus* a determined percentage of profit, because the percentage of profit varies enormously according as the actual volume of traffic carried recedes on the one side or the other from the assumed volume x.

Another claim often made is for 'equal mileage' rates. Now it needs no argument to show that such rates are the antithesis of 'cost of carriage' rates. For each item of business has a different cost, which is the resultant of all the conditions under which the business is done. We may summarize the conditions under two main heads, physical and commercial. Under the physical conditions take, as an illustration, the one point of gradients. There was at one time a line in Derbyshire—the High Peak Railway—where at one point the load of an engine was limited to a single truck. Down the South Wales valleys an engine can haul to the coast seventy or eighty fully-loaded trucks. Is a ton of coal to pay the same per ton-mile in the two cases? As for commercial conditions, we have seen that main lines can spread their costs over so many units of traffic that the cost per unit is small. On lines with light traffic the cost per unit is necessarily many times larger. Combine the two sets of conditions, as nature usually does combine them, and compare a mountainous pastoral country, such as North Wales, with a flat busy district of dense population, such as South-West Lancashire, and the absurdity of equal mileage rates must surely be obvious.[1]

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[1] The French railway companies compile and publish statistics giving, for each section and branch of their system separately, the traffic carried over it, the earnings, expenses, and net profit. Broadly, the result is to show that the main lines with low average rates are splendidly profitable, while the lines with light traffic, spite of higher rates, are in most cases worked at an actual loss. The only attempt with which I am acquainted to give similar information in this country was made by the South-Western Railway before the Court of the Railway and Canal Commission in the Southampton Docks case. In that case, where it was a question of the reasonableness of charging very much higher rates for local and retail traffic than for the wholesale traffic in the same commodities between Southampton and London, figures were produced which were not disputed by the complainants and were apparently accepted by the Court. The effect of them was broadly as follows: a trainload of dock traffic, in bacon, butter, and the like, charged at 6*s*. per ton for seventy-eight miles, earned 12*s*. 6*d*. per train-mile, leaving the railway company, after deducting 2*s*. 6*d*. per train-mile as cost of working, 10*s*. per train-mile net profit. The local traffic came in such small and uncertain quantities that, though the rates charged averaged 15*s*. per ton for an equivalent distance, a train only earned 5*s*. per mile, leaving, after once more deducting 2*s*. 6*d*. per train-mile for expenses, a net profit of only 2*s*. 6*d*., or one-fourth of that in the former case.

The moral seems evident. On 'cost of carriage' principles the difference between the 6*s*. rate and the 15*s*. rate is by no

The theory, unconsciously held perhaps, that equal mileage rates represent substantial justice, not only to the railway company but also as between competing consignors, is at the bottom of another often-recurring fallacy. The railways connecting the Mersey with London used to carry large quantities of American beef at a rate of 25*s.* per ton. On their way to London the trains pass through Cheshire and Staffordshire, and the local rate for meat thence to London was 40*s.* The American traffic was carried, so it was said repeatedly, ‘at the cost of the English farmers.’[1] Now if the figures given above for the relative profitableness of wholesale and retail traffic on the South-Western Railway can be taken as in any way typical, it is evident that a rate of 25*s.* for 190 miles for wholesale traffic would leave a much larger margin of profit, after paying all the expenses that should be debited against that traffic, than a rate of 40*s.* for, say, 150 miles would leave in the case of retail traffic. But let us neglect this. Let us assume that the two traffics are similar and that the operating ratio is the same. Then, taking the 40*s.* rate as being a normal and averagely profitable rate, we may assume—reckoning pre-war working expenses as roughly 60 per cent. of the gross

means sufficient. The English producer ought to be charged much more, or else his American competitor should pay much less. It may sound a paradox to the uninitiated, but every practical railway-man knows it to be, broadly speaking, a fact, that, high as the rates for retail traffic are compared to the wholesale rates, they would need to be even higher, were it not that the profitable nature of the wholesale traffic enables the railways to forgo almost all—in some cases unquestionably more than all—profit on their retail business.

[1] See, e. g., the evidence of an eminent lawyer and influential Member of Parliament, Dr. Hunter, before the House of Commons Committee of 1881 on railway rates.

receipts—that, out of the 40*s.*, 24*s.* represented cost and 16*s.* represented profit, while out of the 25*s.* rate there would only be a profit of 10*s.* A smaller profit per ton; but on a larger turnover. Where is the loss to be made up at the expense of the local traffic ? [1]

But this is not really the light in which the matter should be regarded. The railway is there in any case. To Cheshire and Staffordshire it is an absolute necessity. Without it their meat could not get to London at all. Only a very small part of the cost of its operation could be saved, if every ton of American meat went by sea direct to London. A liberal estimate of the extra (pre-war) cost of running a special train of meat from Birkenhead to London would be £50. Yet 100 tons at 25*s.* would have paid £125, and so have left a net profit of £50 to help the inland districts to support the burden of the fixed operating expenses and interest on railway capital, which otherwise they would have to bear unaided.[2]

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[1] It is passing strange that, of all the writers and speakers who have accused English railways of carrying foreign at the expense of home produce, no one has ever stopped to ask why this was done. Why should a railway manager, presumably sane, except for mere superfluity of naughtiness, 'charge the people about Wolverhampton in order to make up the loss from Liverpool'? (Evidence of Dr. Hunter, M.P.) Surely if there were a loss, a reasoning being would abandon the Liverpool traffic and keep to himself the undiluted profits of the Wolverhampton business. And the more so because, so far as it is a question of competition between English and American farmers, the whole interest of the English railway is on the side of encouraging the home producer for whom it carries, not merely the dead meat, but also the manure, the feeding stuffs, and all the products of hide, horn, and hoof, to say nothing of all the requirements of the farmer and his family.

[2] It may of course be said that an equal rate of, say, 30*s.* to Cheshire and Liverpool alike would have been fairer to the customers and just as profitable to the railway. So far as this

Yet another theory of railway rates has been put forward. They ought to be, it is said, based on ‘ postal principles ’ ; that is, there should be, irrespective of distance, one universal rate as for an ordinary letter. Some reformers indeed, feeling that this, their ideal, was difficult of attainment, have been ready to temporize with existing practice and to be content with three zones of short, middle, and long-distance traffic respectively, within each of which one uniform fare or rate should be charged. A desire to conciliate the public opinion in favour of this latter idea was largely responsible for the introduction in 1889 of the famous Hungarian zone-system of passenger fares, which, however, contained at the outset fourteen zones instead of only three, and which soon after its introduction had to be more than once modified, and always in the direction away from the postal principle of uniformity.

Now to a so-called zone-system there can be no abstract objection. In fact, every railway undertaking that ever existed or is likely to exist has or will have

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argument deals with the very difficult question of ‘ undue preference ’ between rival customers of the railway, it is so largely a legal question that it does not belong to an elementary economic thesis. But here it may be said that *ex hypothesi* the proposed course is impossible. We are bound to assume that in its own interest the railway charged the American meat all it could be got to pay. The low rate was put in force because with a higher rate the meat went by sea to London. On the facts of the individual case this may not have been so. In that case the officers of the company made a mistake and sacrificed unnecessarily a portion of their possible net profit, just as any merchant might do who failed to appreciate market conditions. A distinguished French writer, Colson (*Transports et tarifs*), suggests that in cases of this kind a self-registering gauge of the proper height of the exceptional rate is to be found in the fact that the sea route obtains or retains some portion of the traffic.

a zone-tariff. In ordinary cases the zone is one mile, or one kilometre as the case may be, for short-distance traffic ; while in most countries, when the distances get longer, the unit of charge for goods traffic, and sometimes for passenger traffic as well, becomes three or five or ten or even more miles or kilometres. That the Hungarian system, even for short distances, treated ten kilometres as an indivisible unit involved no special principle ; it was merely a matter of administrative convenience. It simplified somewhat the checking of tickets, and economized to a trifling extent in printing and book-keeping. On the other hand, the largeness of the unit excites discontent rather than promotes satisfaction. A fare being charged for, say, thirty kilometres, no one gets anything more than he has paid for ; the man who only wishes to travel twenty-one kilometres gets a good deal less. But if the Hungarian administration regarded the convenience as worth purchasing at the price, there is no more to be said.

The real point is one of principle. *Prima facie*, and other things being equal, a tariff ought to be based on mileage, and the more accurately it is so based, the fairer it is both to the railway and to its customers. Every extra 100 yards the traffic is carried means an extra service to the customer for which, in equity, he ought to pay ; it means also an extra expenditure by the railway company—both in capital spent, carriage performed, and plant and organization maintained for the purpose—for which, in equity, it ought to be paid. The postal analogy is entirely misleading. In dealing with a letter, cost of conveyance is only a fraction of the total cost, which is mainly incurred for sorting and distribution. Almost the whole cost of passenger traffic and a large part of the cost of goods traffic is conveyance cost, using the phrase in the broad sense of all cost other than terminal. Postal cost of conveyance, moreover, is wholly independent of distance. It undoubtedly costs more to carry a letter from one Rossshire village to another in a different glen than to carry it from Dingwall to London. To say that it costs the railway more, if the passenger from Dingwall gets out at Inverness instead of going on to London, would be obviously absurd. Apart from principle, postal tariffs are impossible for practical reasons. The Post Office can average its 1½*d*. charge, partly because the charge is so small that, even when it is most excessive (having regard to actual cost), the excess is too trifling to rouse objection, but mainly because it is protected by its statutory monopoly from the competition of halfpenny or penny town-posts for its most profitable business. But railways have no such monopoly, and their average fare is not trifling. It is in the United Kingdom roughly 5*s*., 2*s*. 10*d*., and 1*s*. 3*d*. for the three classes respectively. That long-distance passengers would welcome a charge on ‘postal principles’ need not be said. But what passenger from Oxford Street to the Bank, or from Charing Cross to the Mansion House, would pay the average fare? Naturally, some hundreds of millions of passengers would drop out. Their fares being lost, the railways would be forced to raise the average fare to recoup the loss, say to 7*s*., 4*s*., and 1*s*. 9*d*. Again, a couple of hundred million passengers would go. Again the average fare would have to be raised, and so on *da capo*.

The experience with the flat fare even on urban railways in the United States has been that the great majority have been reduced to bankruptcy, in spite of the fare being increased until it is nearly doubled, e. g. Boston 9 cents, formerly 5 cents. The matter has been put to practical test in London. When the Central London Railway opened, it charged a flat fare, and is still in consequence often called 'The Twopenny Tube'. The system was not a success. Short-distance passengers would not pay twopence, when they could ride on an omnibus for a penny. If all the passengers travelled comparatively long distances, and so made it impossible for the Company to fill and empty its carriages two or three times between the Bank and Shepherd's Bush, the Company could not afford the service at the price. Taught by experience, the Piccadilly Railway, when it opened, charged fares graduated from 1*d.* to 5*d.* This latter fare was for the full distance from Finsbury Park to Hammersmith. It was soon found, however, that so few tickets were issued for this journey that it was not worth while to print them. So the maximum fare came down to 4*d.* And later on the Twopenny Tube itself fell into line. So an experience of a good many years, during which scores of millions of passengers were carried, proved conclusively that a flat rate was impossible even on a line six miles long. But this does not prevent eccentric persons from publishing from time to time pamphlets advocating the adoption of the postal principle for the whole of Great Britain.

The foregoing argument tends to show that railway rates must be broadly based on mileage. And we shall be strengthened in our belief in the correctness of our theoretic argument, when we remember that as a fact, always, everywhere, on state lines equally with private railways, they are and have been so based. But we have also seen that equal mileage rates are an impossibility, and that deviations from such equality cannot be referred to any principle of charging according to cost of carriage. Further, we have seen that rates far below the normal scale may still be profitable, even exceptionally profitable, and that rates would have to be cut almost to a vanishing point before it could be said that the traffic to which they were applied was carried at the expense of other traffic.

But to say that rates must be based broadly on mileage does not carry us far, if, as we have seen, it seems reasonable that traffic in the same articles for the same distance over the same line should be carried simultaneously at rates which compare to each other in the ratio of 1*d.* to $2\frac{1}{2}$*d.* per ton per mile.[1] Somehow we must get closer to the principle on which rates are actually fixed. Probably we shall do so best by adopting the historical method.

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[1] See note, p. 60.

CHAPTER VII

RAILWAY INCOME

ITS HISTORICAL DEVELOPMENT

The earliest English railways, the tramways and plateways and railroads on Tyneside, were merely what modern railway parlance would term 'mineral lines'. They were built to carry coal and nothing but coal; practically speaking, they carried no goods, certainly no passengers. The first real passenger line was the Liverpool and Manchester, opened in 1830. It was promoted primarily to carry goods; as a matter of fact passengers flocked to it in such numbers that, for some time after the opening, the goods were crowded off the road. A dozen years later, when the bulk of what are now the great trunk lines had been opened, three-quarters of the total railway revenue was derived from passengers, only one-quarter from goods. On the trunk lines themselves, the Great Western or the London and Birmingham, the proportion of goods receipts was more like a fifth or a sixth of the whole. Gradually, the goods gained on the passengers till, in the early 'fifties', they represented more than half the receipts. Beyond this point they have not gone very far since. Thirty years ago the ratio got as high as 55 to 41 per cent.; about a dozen years ago it was roughly 51 to 43 per cent.[1]

[1] The Board of Trade returns from which these proportions are taken included under the heading 'passenger traffic

Now what are the historical facts that lie behind these figures ? The passenger traffic of the 'forties' represented well-to-do people, customers transferred in great measure from post-chaises and stage-coaches, and paying fares averaging fully 2*d.* per mile. There were 18 000 000 of them in 1842, only a handful of whom travelled third-class. Sixty years later the passengers, including season-ticket holders, had increased to 1 500 000 000 ; nine-tenths of them travelled third-class, and the average fare per mile had fallen from 2*d.* to under ½*d.*, less than one-fourth.[1] What does this mean ? The well-to-do people, the customers whom the railway found ready made for them, had increased largely in number, in wealth, and in the habit of travel. They accounted perhaps for 130 000 000 journeys against 18 000 000 sixty years before, and they still paid fares not greatly below the original 2*d.* Meanwhile, fares, gradually and steadily descending from the original 1½*d.* a mile third-class, through the Parliamentary 1*d.* a mile, first by one train a day and then by all trains, down to excursion and workmen's fares ranging as low as five miles for a 1*d.*, had brought into existence an absolutely new traffic, in the main of classes that two generations ago never travelled at all. At the

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receipts' receipts from parcels, mails, horses, fish, &c., carried by passenger train. These are now shown separately in the Ministry of Transport Statistics, and the figures for 1923 are :

Passengers, £77 000 000 ; Mails, £2 100 000 ; Parcels Post, £1 700 000 ; Other Passenger Train Traffic, £13 300 000 ; Goods Train Traffic, £110 000 000.

So that the percentages of goods train receipts and passenger receipts proper in this year were about 59 and 41 per cent. respectively.

[1] This is on the assumption that the passenger-mile figures for August 1903, published by the North-Eastern Railway, were fairly typical of the country generally, as I see no reason why they should not have been.

present time much more than nine-tenths of the passengers travel either third-class or with season tickets at much below the third-class scale. Their number is about 1 750 millions per annum.[1]

That the trunk lines in the 'forties' carried very little goods traffic need not surprise us. The superiority of an express train over a post-chaise is overwhelming, but a goods train has no such crushing advantage over a canal barge or a coasting steamer. The barges are not quite, and the coasting steamers are a long way from being, crushed even yet. In the early days, with puny and extravagant engines, with no signalling system, rudimentary hand-brakes, and a considerable and profitable passenger traffic, the difficulty of working a line crowded with trains was so great that railway managers had no great temptation to try and attract low-class traffic from rival carriers by making low rates. What freight traffic they got was of small bulk and high class, to which speed was of more importance than cost. The exclamation of the London and Birmingham Railway director, when it was suggested to him that his highly aristocratic line should carry coal to London in competition with the Grand Junction Canal and the Newcastle coal-brigs—'Coal! Why they'll be asking us to carry dung next!'—may or may not be apocryphal, but represents a real and not unjustifiable attitude of mind. And indeed had it been possible for the London and Birmingham to remain as it began, a great through line, with no extensions and no branches to dilute its profits, it might well have gone on to this day untroubled with low-class innovations such as coal and third-class passengers, and yet have continued to pay without difficulty to its shareholders its original dividends of 10 per cent.

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[1] The increase in twenty years is much greater than would appear from the text. The old figures of 1 500 millions were merely added together from the returns of the separate companies, and they treated a passenger travelling over three lines—though his total journey might be only 5 miles—as three passengers. The Ministry of Transport figure of 1 750 millions counts each passenger journey as one only, though the journey may have been over three or four separate lines.

But fortunately for the country, if not for the shareholders, such a policy was impossible for any of the great companies. In self-preservation they were compelled to occupy the territory on either side of their main line of communication. And new capital expenditure on new and unproductive branch lines needed new sources of revenue to meet it. The high-class traffic that had come as of course was exhausted. New traffic had to be obtained somehow, and the only way to obtain it was to charge lower rates. For the fact that the railway was not carrying it showed that it could not or would not pay the existing rates. If coal, for instance, was worth 10*s.* at the pit in South Staffordshire and 20*s.* on the railway wharf in London, evidently the coal merchant could not afford to pay a railway rate of more than 10*s.* Equally evidently, though the London selling price was 20*s.*, the coal merchant would not pay a railway rate of 10*s.* if the canal rate was only 7*s.* 6*d.* So new rates had to be made, differing widely in that some of them were specially made to attract traffic that otherwise would have gone by other routes, others were general for the benefit of goods that otherwise could not profitably travel at all, but all alike in that they represented large reductions on the rates previously in force.

Such in broad outline is the history of the development of railway traffic and railway tariffs in this country. In its main features it represents the history of railway development everywhere. The railway begins with a small volume of high-class traffic at high rates. Its constant tendency is to increase the volume of traffic by successively lower rates to tap successively lower strata of traffic. The traffic attracted by such rates is partly drawn from previously existing but less efficient modes of conveyance, partly created by the new railway facilities. As the traffic increases, the average rate comes down, and as the rate comes down the traffic increases. And so the reciprocal process goes on, up to the point where the railway has got all the traffic it can afford to take. The point at which reduction stops is where it only just pays to get the traffic ; that is, when the extra cost of dealing with the lowest rated traffic is all but equal to the earnings from it.[1]

American history affords a typical instance of this process of development. As early as 1825 the Erie Canal furnished in conjunction with the Hudson River what was, for its time, a highly efficient route from the Great Lakes to the Atlantic seaboard at New York. A through railway route was completed from New York to Buffalo, practically paralleling the river and the canal all the way, by the year 1842. But it was not till 1853 that the railway began to compete seriously for the canal traffic. At that time the traffic on the canal was so great that the tolls, though by successive reductions they had been brought down to one-third of their original figure, were yielding to the State of New York, which owned the canal, an annual profit of over 50 per cent. on the original capital outlay. And at this stage the commanding personality of Commodore Vanderbilt appeared on the scene. He bought up the various independent companies—there had originally been fourteen of them—which owned the continuous railway route, and amalgamated them into one concern, the New York Central Railroad, and then he put in force through rates low enough to attract traffic from the canal. The traffic came, enabling him thereby to spread the fixed costs of his railway over a greatly increased volume of traffic. Cost per unit of traffic being thereby lowered, the way was clear for a further reduction of rate. The rate being reduced, again a further volume of traffic was drawn from the canal, and again the railway could afford to reduce its rates. Gradually the canal profits dwindled and disappeared. The State of New York, in a vain endeavour to retain traffic on their canal, assumed the whole charge for maintenance and abolished tolls. Nothing could arrest the decline of the canal.

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[1] This point, which might be called the marginal rate, will evidently be sooner reached in an old, densely populated country like England, where widening of lines and extension of stations are exceedingly costly, and where working costs are, for many technical reasons, unusually high, than in a new country where these conditions are reversed.

To-day its traffic is a practically negligible quantity, though the people of New York State have incurred an expenditure of £34 000 000 sterling on widening and deepening the canal, so as to make it navigable for barges of about 2 000 tons burden, in the hope of thereby restoring to it some measure of its former importance. The result of this vast new expenditure may be given in a sentence. In 1916, before the enlarged canal was open, the traffic was 1 600 000 tons ; in 1922, when the new works had been open five full years, the traffic had increased to 2 200 000 tons. Meanwhile the railways alongside are carrying not less than 150 000 000 tons a year. And though competing railways innumerable have come into existence all round it, the New York Central is earning a splendid income by carrying a volume of traffic many times that which would have blocked and congested the old canal at rates per ton per mile only a fraction of those which it charged half a century ago. Nor is this all. For if it was the existing traffic which the railway annexed from the canal that first enabled the railway company to reduce their rates, it was the reduction of those rates which made possible the settlement of the great grain-fields of the North-West, and so assured to the railway the development and continuance of a new traffic beyond the utmost dreams of the early railway managers.

But it must be noticed at this stage that, while the average rate necessarily comes down as the traffic of a railway develops—and this for two reasons : because lower rates are introduced, and because the volume of traffic at those lower rates steadily becomes a larger proportion of the whole—it by no means follows that the highest rates are reduced. The first-class fares from London to Dover were higher before the war than they were when the line (then thirteen miles longer) was opened seventy years before ; and it is probable that the rates for the highest class of goods, such as cigars or silks, were even in 1914 as high between Liverpool and Manchester as they ever were.

In the nature of things this is only to be expected. No one—not even a railway manager—gives away money as a business transaction. The manager who reduces a rate on coal, or a third-class fare, does so hoping that traffic will be so stimulated that there will be a greater net profit on the larger traffic at the lower rate than there was on the smaller traffic at the higher rate. His expectation may be disappointed, for all reductions do not stimulate even cheap traffic ; his reductions may have been unduly great, the gains may not cover the losses ; for, whatever railway critics may say, the Irish applewoman's principle, that you can afford to sell each apple at a loss if you only sell enough, is not universally true. But it was on this expectation that the manager acted.

Now no one can suppose that a reduction of 10*s*. on the Dover first-class express fare would induce a single human being to spend a month on the Riviera or to choose the overland route to India. Nor would 10*s*. per ton off the railway rate for cigars—worth from £2000 to £7000 a ton—tend to stimulate their consumption in Manchester.

If high-class rates, whether for goods or passengers, are reduced, the cause is practically always competition in some form or other. If the fares to Brussels via Ostend are reduced, the Calais route may have to follow suit or lose an appreciable part of its traffic. A line of direct steamers from Havana to Manchester might well bring down the rate for cigars from Liverpool. For railway customers are no more apt than railway managers to give something for nothing ; and, however well able the cigar traffic may be to bear a rate of, say, 20*s*. per ton, the cigar merchant will not pay it if he can get his cigars carried by an equal service for 10*s*. and add the 10*s*. to his own profits.

But a difference between passenger and goods traffic should be here noted. Goods are classified by the railway company in a manner which must be discussed more in detail presently. Cigars, if they are to be carried at all by the railway, must pay the rate fixed as suitable for the class to which they belong. With passengers this is not so. Passengers classify themselves; and accordingly first, second, and third-class carriages on the same train in a very real sense compete with one another for the custom of the potential passenger. Many a man who is perfectly able to pay first-class fare, and who would never dream of refraining from travelling if the minimum fare were 3*d.* per mile, asks himself when he goes to a station in which class he will get best value for his money, and journeys now in one class, now in another, according as the personal considerations of the moment may affect him. A first-class passenger fare of 50 or 60 per cent. above the third may therefore prove in practice the highest rate that can profitably be charged in this country. For while, if the first-class fare was 3*d.* per mile, probably not more than five passengers in every hundred would refrain from travelling third-class, at 2½*d.* per mile twelve passengers may refrain from doing so. In the former case the railway receives, say, 7½*d.* above third-class fare; in the latter case it receives 12*d.*, and the extra 4½*d.* more than covers the extra cost. The first-class fare must, then, bear some reasonable relation to the third-class fare. This is well illustrated by after-the-war experience. When fares were thrown into the melting pot, and 1½*d.* emerged as the highest fare which could be got out of third-class passengers, the various railway companies, whose first-class fares had heretofore varied from as little as 67 per cent. to as much as 200 per cent. above the third-class fares, unanimously agreed that in future first-class should be fixed at 1*d.* per mile above the third-class, that is in the ratio of 5 to 3. The result of this difference in the nature of passenger and goods traffic is that, while the normal English goods rates per ton for a distance of, say, twenty miles rise perhaps at the present time from, say, 1*s.* 9*d.* in the case of coal to 16*s.* in the case of cigars,[1] the difference in the case of ordinary passenger fares is now only between a minimum of 2*s.* 6*d.* and a maximum of 4*s.* 2*d.*[2]

We are now in a position to summarize our conclusions. The highest rates charged represent the rates made in the infancy of railways to attract from earlier means of conveyance, stage-coaches and stage-wagons, the high-class traffic with which alone they dealt. Thereafter, by successive introduction of lower and lower scales of rates, the railway net has swept in new traffic, now from new and more distant areas, again in commodities of lowest value, and yet again in commodities that, owing to exceptional advantages of situation, could only be attracted from rival means of conveyance by exceptional concessions.

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[1] Including terminals in both cases, and assuming no charge to be made for cartage.

[2] The truth of the point made in the text is well shown by the history of those very Dover fares. For many years the first-class express fare was £1, the first-class ordinary fare 18*s.* 6*d.* Before the war the express fare, which had been reduced by Parliament to 19*s.*, was only charged on the through continental trains, which did not carry third-class passengers. Practically it was not a local fare at all, but a portion of a through rate charged to passengers who were going abroad and likely to continue their journey by trains which are confined to first-class passengers. The ordinary fares charged by local trains between Dover and London, some of which were faster than the so-called 'expresses', and all of which of course carried third-class passengers, were 13*s.* first-class, and 6*s.* 5½*d.* third. It is safe to assume that the railway company made more profit by charging the local first-class passengers the lower fare of 13*s.* than the old fare of 18*s.* 6*d.*

The principles underlying this policy—a policy which, be it once more repeated, is common to all railways, whether owned by the State or by private companies—may be said to be three :—

I. Get traffic. The more traffic carried, the less it costs to carry. Therefore, first and foremost, get traffic.

II. Charge no rate so high as to stop the traffic from going : subject to

III. Never make a rate so low as not to cover the additional cost incurred in dealing with the traffic to which the rate applies.

Principles I and II are, it will be observed, intimately co-related : for a reduced rate which would imply an actual loss on a given volume of existing traffic may be quite profitable if the reduction doubles the volume of traffic to which the rate applies.

Further, it will be seen that principles II and III fix the maximum above which and the minimum below which rates cannot be carried. There is, however, a gap in No. II, of some theoretical though of little practical importance. Millionaires and bullion are left *corvéables à discrétion*. For clearly, first-class fares and rates for the carriage of bullion might be raised manifold above their existing level before a London financier would be induced either to travel himself or to send his gold remittances by cargo steamer from the Thames to New York, rather than pay the railway charge from London to Liverpool or Southampton. The truth is that millonaires and bullion constitute so small a portion of the total traffic that to the railway they are a negligible quantity. Even were they not, as they are, protected in practically every country by positive legislation from charges wholly disproportionate to the cost of the service, it would still not be worth while for the railway to endeavour to place them in a separate category.[1]

Reverting to the serious question, we have a maximum rate fixed by capacity to pay, and a minimum rate fixed by the price at which the railway, regard being had to the volume of traffic actual and potential, can afford to take business. These two points are, speaking broadly, ascertainable with sufficient accuracy for practical purposes by investigation and inquiry. But they may be very far distant from each other, and in the case of certain traffics they always are. The railway manager has no exact standard to guide him in fixing an actual rate at any point between the two extremes. Is he cautious and conservative by temperament, or is he placed in a country such as Ireland, with decaying industries and diminishing population, he naturally tends to hug the uppermost limit. If, on the other hand, he is of sanguine disposition, still more if he is in the midst of a rapidly progressive community, or in a country with boundless possibilities such as the United States, he equally naturally tends to venture the present in view of the potentialities of the future. Both men are actuated by the same motives. Each desires for his railway—subject to limitations which have been partially suggested already and which will have to be dealt with more at length hereafter—the maximum net receipts. But the one aims to reach his end by making a large profit on a small business, the other sees a fortune in obtaining a marginal profit on a huge turn-over. There is a further point. Articles sufficiently resembling each other to be placed in the same class in the classification may respond very unequally to the stimulus of a reduction in rate. Either moral pressure in opposition to apparent unfairness or fear of the result of an action for undue preference may in such cases make a railway manager shy of experimenting with rate reductions.

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[1] Motor carriage has already reached such a stage of development as to make it clear that road competition will in the future exercise considerable influence in keeping down the rates for certain traffics both passenger and freight.

Clearly the former method, large profit on small business, gives least trouble to the management; the latter is most to the benefit of society at large. But unless the one tendency or the other is pushed to an obvious extreme, no one can say positively that either manager is right or wrong. There is no norm to which a particular railway rate ought to conform. It passes the wit of the most experienced official of the executive government, of the most learned judge of a railway tribunal, to decide whether a given rate of, say, one penny per ton-mile is *per se* reasonable, or whether $\frac{15}{16}d.$ or $1\frac{1}{16}d.$ would be more or less reasonable. Fixing a railway rate is, in one word, an art not a science, and it is an art which, in Bagehot's phrase, must be exercised 'in a sort of twilight, . . . in an atmosphere of probabilities and of doubt, where nothing is very clear, where there are some chances for many events, where there is much to be said for several courses, where nevertheless one course must be determinedly chosen and fixedly adhered to'.

So far we have imagined the railway manager fixing an individual rate. But in reality his task is immeasurably more difficult than this. He has to fix, not one rate, but thousands and millions of rates. The classification of merchandise in a highly developed country like England or France or the United States contains thousands of entries, and to each item its relative place has to be assigned. This matter must be dealt with in more detail hereafter. For the present, it is sufficient to note that careful attention must be paid to the ratio of charge on articles competing with or capable of being substituted for each other ; to the scale of decrease in the charge per mile, as distance increases ; of decrease per ton as the weight of consignment increases, and so forth.

In truth, though we have personified the management and imagined a man fixing a complete system of railway rates, no one man, and indeed no combination of men, could erect such a system offhand from the foundations. It can only grow gradually, developing here and changing there, as the country itself develops, and its industry and trade are modified by time and circumstance. But the guiding idea of the management remains the same throughout. Each rate has, as we have seen, its own possible maximum and minimum. All the rates must among them cover all the expenses and leave, if possible, sufficient margin to pay interest on capital at the normal rate. *Inter se*, the rates must be so adjusted that each item of traffic bears its fair share of the total cost of the entire railway service.

As has been indicated already, this dictum cannot always be applied to passenger traffic. There have been many cases in which railway companies have carried on the whole of their passenger service without its making any contribution to profits. Speaking generally, the United States railways at the present time carry on their passenger traffic at no profit, though there are cases, like the New York – Philadelphia services, where a substantial profit is made. Some railways undoubtedly carry their passengers at fares which are below cost, but if the railway is to have any chance of being a financial success, a service for passengers must be given, whether it contributes its fair share of the total cost of the railway service or no.

But what is ‘ its fair share ’ ? In the familiar railway phrase the answer is, that the manager endeavours to charge each category of traffic ‘ what the traffic will bear ’. The idea is fundamental ; the practice is universal. A more detailed examination is therefore necessary. In the following chapters we shall accordingly consider, first the meaning of the phrase ‘ charging what the traffic will bear ’ ; secondly, how far this method of charge is equitable ; and thirdly, by what machinery it is put into practical application.

CHAPTER VIII

CHARGING WHAT THE TRAFFIC WILL BEAR

THE MEANING OF THE EXPRESSION

THE phrase ‘ charging what the traffic will bear ’ has, for some not very obvious reason, undoubtedly acquired an ill repute. On the face of it, it surely seems to represent a principle, not of extortion, but of moderation. To charge what the traffic can bear is, in other words, not to charge what the traffic can not bear. Yet the phrase is commonly understood quite differently. It has been asserted that railway managers claim to estimate for themselves production cost at A and selling price at B, and to appropriate as railway rate the entire difference. Even a sober writer like Mr. Jeans declared that ‘ the railway companies make no secret of the fact that, in cases where there is little or no competition compelling a different course, their guiding principle is imposing on the traffic just as much as it will bear.’ [1] The truth is that, whatever rash and unqualified statements may have been made by individual railwaymen under particular circumstances—a famous French manager, M. Aucoc, is reported to have declared : *Faites payer au trafic tout ce qu'il peut payer ; tout autre principe est un nonsens* [2]—no railway administration has ever acted on any such principle. For instance, twenty years ago the Chancellor of the Exchequer increased the tax on imported cigars by 1*s.* per lb., which equals £112 per ton. Cigars, that is, were believed to be able to bear this extra rate, though they were taxed at over £600 per ton already. Can any reasoning being imagine that a rate of perhaps £5 per ton for carriage from Liverpool to London approaches the limit of what the traffic can bear ?

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[1] *Railway Problems.* London, 1887, p. 283.

[2] ‘ Make traffic pay all that it can pay ; any other principle is an absurdity.’

The real meaning of the phrase is that, within the limits already described—the superior limit of what any particular traffic can afford to pay, and the inferior limit of what the railway can afford to carry it for—railway charges for different categories of traffic are fixed, not according to an estimated cost of service, but roughly on the principle of equality of sacrifice by the payer. So regarded, ‘ what the traffic will bear ’ is a principle, not of extortion, but of equitable concession to the weaker members of the community. Had railway managers in the past declared that their principle was ‘ tempering the wind to the shorn lamb ’, their descriptive accuracy would have been equally great, while their popularity might have been greater. Somehow, the total cost of maintaining and operating the railway has to be paid for ; broadly and in the long run, the capital invested in railway construction must be remunerated at the normal rate of interest. Under a competitive system this may not be true of each individual line, but, though the rates charged on an individual line may be independent of its capital cost, the capital invested in the railway system of an entire country, regarded as one whole, has to receive interest, if not out of railway rates, then out of general taxation.

Can any system of apportionment of this necessary expenditure be more equitable than one under which the rich—well-to-do passengers, valuable freight, traffic with the advantage of geographical situation close to the markets, and the like—contribute of their abundance; while the poor—third-class passengers, bulky articles of small value, traffic that has to travel far to find the market, and so forth—are let off lightly on the ground of their poverty?' Translated into railway language, the principle means this: the total railway revenue is made up of rates which, in the case of traffic unable to bear a higher rate, are so low as to cover hardly more than out-of-pocket expenses; which, in the case of medium-class traffic, cover both out-of-pocket expenses and a proportionate part of the unapportioned cost; and which finally, in the case of high-class traffic, after covering that traffic's own out-of-pocket expenses, leaves a large and disproportionate surplus available as a contribution towards the unapportioned expenses of the low-class traffic, which such traffic itself could not afford to bear.

This, in principle and in outline, is the system of charging what the traffic can bear. It is the system which—the point must be reiterated—is, always has been, and, as far as we can see, always must be adopted on all railways, whether they be State enterprises or private undertakings. It is true that German railways at one time, largely under the influence of abstract theorists, turned aside from this system. For practical purposes they have long ago reverted to it, though the form of their tariffs still sometimes leads superficial observers to imagine that their rates are based on cost rather than on value of service. Moreover this system is at once in the interest of the railway, because even the lowest class traffic, by whatever small amount its rates exceed the additional cost of doing the business, contributes to the general expenses of the undertaking ; in the interest of the public, because traffic is thereby made possible, which could not come into existence at all, if each item of traffic was required to bear, not only its own direct expenses, but its full share of all the standing charges ; and in the interest of the high-class traffic, because everything which the low-class traffic pays beyond its own actual out-of-pocket cost helps to defray the general expenses of the undertaking, which otherwise the high-class traffic would have to bear unaided.

The Inter-State Commerce Commission of the United States, whose original chairman was Judge Cooley, one of the greatest constitutional lawyers America has ever had, were forced at the outset of their work in 1887 to consider the question whether rates, avowedly based on what the traffic would bear—or, in other words, not on cost but on value of service—could be regarded as equitable. And they expressed their conclusion in their First Annual Report to the following effect :—

'It was very early in the history of railroads perceived that, if these agencies of commerce were to accomplish the greatest practicable good, the charges for the transportation of different articles of freight could not be apportioned among such articles by reference to the cost of transporting them severally ; for this, if the apportionment of cost were possible, would restrict within very narrow limits the commerce in articles whose bulk or weight was large as compared with their value. On the system of apportioning the charges strictly to the cost, some kinds of commerce, which have been very useful to the country, and have tended greatly to bring its different sections into more intimate business and social relations, could never have grown to any considerable magnitude, and in some cases could not have existed at all, for the simple reason that the value at the place of delivery would not equal the purchase price with the transportation added.

'The traffic would thus be precluded, because the charge for carriage would be greater than it could bear. On the other hand, the rates for the carriage of articles which within small bulk or weight concentrate great value would on that system of making them be absurdly low when compared to the value of the articles, and perhaps not less so when the comparison was with the value of the service in transporting them. It was, therefore, seen not to be unjust to apportion the whole cost of service among all the articles transported upon a basis that should consider the relative value of the service more than the relative cost of carriage. Such method of apportionment would be best for the country, because it would enlarge commerce and extend communication; it would be best for the railroads, because it would build up a large business; and it would not be unjust to property owners, who would thus be made to pay in some proportion to benefit received. Such a system of rate-making would in principle approximate taxation; the value of the article carried being the most important element in determining what shall be paid upon it.

. . . . . .

'To take each class of freight by itself, and measure the reasonableness of charges by reference to the cost of transporting that particular class, though it might seem abstractedly just, would neither be practicable for the carriers nor consistent with the public interest. The public interest is best served when the rates are so apportioned as to encourage the largest practicable exchange of products between different sections of our country and with foreign countries ; and this can only be done by making value an important consideration, and by placing upon the higher classes of freight some share of the burden that on a relatively equal apportionment, if service alone were considered, would fall upon those of less value. With this method of arranging tariffs little fault is found, and perhaps none at all by persons who consider the subject from the standpoint of public interest.'

But though it is not difficult for a dispassionate outsider, regarding the question as merely one of abstract economics, to satisfy himself, not only that the principle of charging what the traffic can bear is in itself equitable, but also that it has commended itself to disinterested public authorities equally as to commercially-minded managers of private dividend-seeking undertakings, it cannot be denied that the lay public regard the principle with suspicion and even with aversion. A railway manager may perhaps convince a plain man that it is reasonable and in the public interest to charge at the rate of 6*s*. per ton for a 20-ton consignment of butter from Southampton to London, and at the rate of 12*s*. per ton for a 3-cwt. consignment from Winchester ; but to satisfy him that it may be reasonable and in the public interest to carry identical consignments of the same goods, and to make the charge 10*s*. for 100 miles, but only 7*s*. provided that the goods travel a further 50 miles, is a much more difficult task. And yet there are cases where the facts are so clear and so simple that even traders who are apparently discriminated against are constrained to admit the justice of their treatment. Here is an instance which actually occurred [1] :—

'On the coast of Delaware a few years ago there was a place, which we shall call X, well suited for oyster-growing, but which sent very few oysters to market because the railway rates were so high as to leave no margin of profit. The local oyster-growers represented to the railroad that, if the rates were brought down to one dollar per 100 lb., the business would become profitable, and the railroad could be sure of regular shipments at that price. The railroad-men looked into the matter. They found that the price of oysters in the Philadelphia market was such that the local oystermen could pay one dollar per 100 lb. to the railroad and still have a fair profit left. If the road tried to charge more, it would so cut down the profit as to leave men no inducement to enter the business. That is, those oysters would bear a rate of $1 per 100 lb. and no more. Further, the railroad-men found that if they could get every day a car-load, or nearly a car-load, at this rate, it would more than cover the expense of hauling an extra car by quick train back and forth every day, with the incidental expenses of interest and repairs. So they put the car on, and were disappointed to find that the local oyster-growers could only furnish oysters enough to fill the car about half full. The expense to the road of running it half full was almost as great as running it full: the income was reduced one-half. They could not make up by raising the rates, for these were as high as the traffic would bear. They could not increase their business much by lowering rates. The difficulty was not with the price charged, but with the capacity of the local business. It seemed as if this special service must be abandoned.

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[1] Hadley, *Railroad Transportation: its History and its Laws*. Putnam & Sons, New York and London.

'One possibility suggested itself. Some distance beyond *X*, the terminus of this railroad, was another oyster-growing place, *Y*, which sent the oysters to market by another route. The supply at *Y* was very much greater than at *X*. The people at *Y* were paying $1 per 100 lb. to send their oysters to market. It would hardly cost 25 cents to send them from *Y* to *X*. If the railroad from *X* to Philadelphia charged but 75 cents per 100 lb. on oysters which came from *Y*, it could easily fill its car full. This was what they did. They then had half a car-load of oysters grown at *X* on which they charged a dollar, and half a car-load from *Y* on which they charged 75 cents for exactly the same service.

'Of course there was a grand outcry at *X*. Their trade was discriminated against in the worst possible way—so they said—and they complained to the railroad. But the railroad-men fell back on the logic of facts. The points were as follows: (1) a whole car-load at 75 cents would not pay expenses of handling and moving; (2) at higher rates than 75 cents they could not get a whole car-load but only half a car-load, and half a car-load at $1 rate (the highest charge the article would bear) would not pay expenses. Therefore (3) on any uniform rate for everybody the road must lose money, and (4) they would either be compelled to take the oyster-car away altogether or else get what they could at a dollar and fill up at 75 cents. There was no escape from this reasoning, and the oyster-men of X chose to pay the higher rate rather than lose the service altogether.'

This case was very unusually simple. There was in question only a special rate on a single commodity between two defined points. The traders concerned were a small number, and could be dealt with individually and directly. But take a case such as the following.

Before the grouping, by the Great Eastern Railway, which went in an almost direct line, Yarmouth was 121 miles, Norwich was 114 miles, and Cromer was 138 miles from London. But there was another route via the Midland, as it then was, from St. Pancras, which, passing Peterborough, 118 miles, and Lynn, 157 miles, turned east along the north coast of Norfolk and reached Cromer in 202 miles, Norwich in 209 miles, Yarmouth in 229 miles. And not only was this latter route a good deal longer to Cromer and very much longer to Norwich and Yarmouth, but all along its course from Lynn on the west to Cromer on the east it was cut by direct Great Eastern lines from London. The result was inevitable. Unless the roundabout route went out of the through business altogether, agreeing not to compete (possibly being given a *quid pro quo* by the Great Eastern elsewhere), its possible rates for London traffic were fixed for it. Their highest practical point was somewhere near Cromer, based on the Great Eastern London-Cromer distance, and they had to fall westwards towards Lynn and southwards towards Norwich and Yarmouth. In other words, no additional charge could be made for carrying the traffic the last one hundred miles of its journey to Yarmouth. But this applied to London only. Intermediate places on the Midland Company's line, for instance Bedford or Wellingboro', had not the Great Eastern route available. They had to send their traffic by the circuitous route. For such traffic the rates, we may assume, rose on a normal mileage basis, and therefore from Bedford to Yarmouth, 179 miles, the rates were considerably higher than if the railway company had received the traffic in London, and had had to carry it 50 additional miles before it reached Bedford.

We may assume that, if a trader at Bedford had happened to discover this, he would have been indignant. Certainly, on the face of it, he appeared to be badly treated. But was it so in reality? Were there any special circumstances entitling him to be charged less than the normal mileage rate? If not, he could not complain; he was only charged on actual distance. Was the Yarmouth traffic carried 'at his expense'? No. For we have seen that, even with rates far below the average, it is yet more profitable to the railway to carry traffic than to lose it altogether. Was the railway enabling the London trader to obtain an undue advantage over his competitor at Bedford or Wellingboro'? Again, no. The London trader had access to the short and direct route. There was no reason why he should pay any more than the rates natural to that route. Bedford's only route to Yarmouth was a circuitous one. This might be Bedford's misfortune, but was not the fault either of the London trader or of the railway company. On the whole, there seems no reason to doubt that the railway company was entitled to carry the traffic past Bedford from London for considerably less than nothing.[1]

It will now be seen that the phrase ‘the rate which the traffic *can* bear’ has two meanings. ‘Can bear’ may mean simply ‘is able to bear’, as in the case of the oysters at *X*, which at a higher rate would have simply been shut out of the market; but may also mean, and very often does mean, ‘Can be made to bear’. Clearly, if between two points, 100 miles apart in direct distance, there are two railways respectively 100 and 150 miles in length, the longer line cannot obtain a higher rate than the shorter. Or again, if there is a direct railway and a roundabout route of 200 miles by sea, the railway can only obtain such a rate as represents the average sea freight with a surcharge for the extra safety, speed, regularity, and convenience which the railway affords. It will be found that it is when ‘ can bear ’ is meant in the latter sense, in other words, when the question of competition arises, either with water or rival railways, that the real difficulty occurs. Economic argument, commercial instinct, seem to point one way. The sense of justice of the ordinary citizen seems to point the other. And the success of legislatures and law courts in reconciling the conflicting ideas has not hitherto been conspicuous.

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[1] And yet what the Americans call ‘a long and short-haul clause’—a clause, that is, providing that the rate for the shorter distance, included in a longer distance, shall never be higher than for the longer distance, other things being equal—is found in the legislation of the Federal Government of the United States and in that of every State in the Union. It is found also in continental executive regulations. In this case, if the through traffic is of such magnitude and importance that the railway company cannot do without it, the intermediate stations obtain an advantage to which they are not equitably entitled. If the through traffic is not of such importance, the railway company simply abandons the business to the rival company with the shorter road, or, it may be, to the competitor by canal or coasting steamer. In such case the railway company suffers, for it loses a profit, though possibly a scant one; the traders at its intermediate stations suffer, for there is no through traffic left to contribute to the general expenses of the railway on which they are wholly dependent. The rival railway or canal or steamer gains; the traders at the intermediate stations of the rival railway, if a railway is the competitor, tend to gain also; the terminal traders are as they were, except so far as they may lose the advantage of competition—in facilities, not rates—between two companies.

Perhaps one main reason why the justice of the principle of charging what the traffic will bear is not more readily conceded is to be found in the fact that this principle is regarded as something exceptional—as a claim made in reference to railway business only, on the ground of a supposed generic difference between railways and other businesses. The truth would rather seem to be that railways are only typical of the great modern business organizations. They came first, and their methods of charging, almost from the outset, differed profoundly from those of the contemporary small trader, to whom cost *plus* a profit represented both an ascertainable and an obtainable price. In industrial undertakings nowadays ‘ cost ’ is a very indeterminate figure ; ‘ profit ’ varies still more widely, both as between different parts of the same business, and in reference to the business as a whole. The public opinion of society at large still, however, assumes that the old principles govern. Most people probably have had personal experience of travelling from *A* to *B* with an ordinary ticket costing, say, £1, and finding that a fellow passenger in the same carriage has obtained a Friday to Monday return ticket for only 6*s*. 8*d*. extra. It seems somewhat unreasonable, and many people have, therefore, felt that they were being unfairly treated. If the railway could afford to carry a passenger to *B* and back again for 26*s*. 8*d*., 20*s*. must, they have instinctively argued, give an extortionate profit on the single journey. And if the cost of carrying a single passenger were a determinate figure, and if to that cost it was always possible to add a fixed percentage representing an average and reasonable profit, the criticism would be just. But, as both hypotheses are unsound, the criticism fails. There was, says an American writer, an 'hotel in Arkansas whose proprietor charged each guest the expenses of the house since the last one left, and collected with a shot-gun'.[1] But modern business is not usually so simple. The Arkansas landlord, possessing not only a monopoly but a shot-gun, occupied a position of greater freedom and less responsibility in making rates than is normally possessed by a railway manager. Let us briefly see how far the principle which, in railway language, is called 'charging what the traffic will bear' is applied, not only to commercial business proper, but elsewhere in the ordinary affairs of life.

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[1] *Railway Practice.* By General E. Porter Alexander. Putnam & Sons. New York, 1887. An excellent little book.

CHAPTER IX

CHARGING WHAT THE TRAFFIC WILL BEAR

SOME ANALOGIES

The simplest case of sale at 'cost *plus* a profit' is perhaps to be found in the wages of unskilled and unorganized labour. The labourer sells his services at cost; that is, food, lodging, and clothing according to the standard of his class, *plus* a profit; that is, so much more as the competition of his fellows enables him to obtain. In California or the Klondike the profit is large; in Bengal or China it is small. But in each case the labourer keeps for himself all he gets. He has no interest on capital to pay, no establishment charges, no maintenance of plant, no expenses of sale. The small master tradesman of a century ago was in much the same position. His house was his workshop, and he had no machinery, almost no stock in trade, and consequently almost no capital. If he received an order for a suit of clothes or a pair of iron gates, he bought as much cloth or iron as he required for the job direct from the actual producer, worked it up into its finished form by the expenditure of a definite number of hours of labour, and then charged the customer the cost of materials and labour *plus* his own profit, fixed, no doubt, on a conventional scale.

But who can say how much is cost and how much profit in the price of a suit of clothes sold nowadays by the ready-made tailor? The material, assembled from all over the world, has passed through many hands—each transaction representing, it may be, a profit or a loss—before it has reached the mill. The cloth as it leaves the mill is weighted not only with the cost of labour and material, which can be pretty definitely ascertained, but with a share of the cost of supervision and management and of the buildings, machinery, looms, &c., which is less definite; and with a quite indefinite share of the cost and salaries of buyers, travellers, and salesmen, and of the interest on floating capital, &c. Is it not evidently impossible for the mill-owner to give as an objective fact the precise cost per yard of a particular piece of cloth? Is it not further evident that, if he assumes 10*s.* per yard to be roughly the price that will return him his cost *plus* a reasonable profit, this is no reason why he should sell at 10*s.*? For he will certainly not sell at 10*s.* if he can get 12*s.*; he will also certainly sell at 8*s.* if he cannot get 10*s.* And at 8*s.* he will be better off than if he does not sell at all; for 8*s.* will cover his out-of-pocket cost for labour and materials and leave something towards his general expenses. Even 4*s.* would be better for him than nothing; for the cloth, if left on his hands, would be useless to him, and 4*s.* would at least go some way towards paying the actual out-of-pocket cost of production. Further, for a considerable time at least, it would pay the mill-owner better to sell all his output at what we may call the 8*s.* rate than to cease production entirely. For—even apart from the question of losing his connexion—it is better to get some, though an inadequate profit out of his capital, plant, and establishment than to get none.

So far we have sketched in outline the history of the cloth, and seen that it has no precise cost of production. Let us now ignore all the various hands that it goes through, though in fact each of them must in the long run affect the price—the fuller, the dyer, the warehouseman, &c.—and imagine that the cloth has reached the tailor. Again the same thing happens. The tailor buys his raw material, the cloth, spends a certain amount in wages for cutting out and making, and then sells a suit to his customer at a price which covers, in addition to out-of-pocket cost for the particular suit, just as much of the general expenses of his factory and shop as he thinks that particular traffic can be made to bear. In a word, the charge to the customer is based on the value to the buyer of the article he buys, not on the cost to the producer of the article he sells.

If, for a tailor in Whitechapel dealing in articles of necessity, we substitute tradesmen dealing in articles of luxury, the range of prices will be very much greater. The frock that in May is offered at thirty guineas by a Bond Street milliner will perhaps be marked in the window at one-third of the price by the end of July. Is the milliner, therefore, selling his surplus stock 'at the expense of' his regular customers? Is it not, on the contrary, obvious that at the end of the season the traffic in summer frocks will only bear a low rate; that, if they were not sold at a reduced price, they would not be sold at all; and that then the average charge to the regular customers would have to be proportionately raised? Once more, the principle of charging what the traffic will bear is a principle not of extortion, but of equalization of burden. The rich customers get their frocks cheaper because the poorer ones pay the actual cost of production of the surplus which they have left; the after-season buyers obtain almost at actual cost articles which they never could have had if the risks and general expenses of the shop were not covered by the purchases of the regular customers.

Instances illustrating the same principle might be multiplied indefinitely. A house in Mayfair may be let furnished for 20 guineas a week for August and September, which is less than one fifty-second part of the annual outgoings. The same house fetches 100 guineas in the season. Is the autumn-tenant, who is brought in by the low rent, being housed at the expense of the season-occupant? Or are they not both bearing according to their respective ability the total cost? Is the householder making an extortionate profit out of the tenant who can afford to pay? Or is he rather taking the rough with the smooth and, on the whole, getting the average value of his house for the twelvemonth? Take yet an instance from a business apparently more closely resembling a railway. A motor-car driver takes a guest to a shooting lodge twenty miles from the station, and the charge is £2. On the way back the driver overtakes a pedestrian and carries him to the station for 5*s*. Is it any injury to the original hirer that the car earns the extra crown? Clearly the pedestrian was only brought in by the exceptionally low rate. There could be no question of making him pay half of the cost of the carriage both ways.

But enough has been said to illustrate the principle. In commercial affairs generally, and not in railway service only, prices are based, not on cost to the producer, but on value to the consumer; subject to this, that the lowest price cannot in the long run go below the special cost of the article sold or service rendered, and that all the prices in the long run must cover all the costs, general as well as special, of all the articles or services. Or, to put the same idea in the language of the economic text-books, the minimum price of an article of manufacture is, in the long run, its prime cost *plus* so much of the standing charges as can be charged against it. The total price of the entire output of the factory must equal total cost of the business, *plus* interest at the normal current rate on the capital engaged.

At this stage, however, it may be said : ‘ A railway is not a shop or a factory, nor a railway manager an ordinary trader. A railway is by its nature a public or quasi-public undertaking ; it is to some extent at least a monopoly. The methods which are justifiable in the case of a manufacturer or a shop-keeper are not necessarily justifiable in the case of a railway.’ The objection is a fair one, and must be dealt with. In the first place, the public importance and the monopolistic nature of railway charges have been recognized in every country, and have led in many countries to these charges being made directly by public functionaries, and in all other countries to their being subjected to a considerable measure of public control. How, and in what manner, and to what extent, the State should manage or control railways and railway rate-making is a matter which cannot be dealt with here. Meanwhile, it may be assumed that in practice the application of the principle will not go unchecked. At present we are only concerned with the question whether the principle itself is the right one. We may take it as shown by our commercial instances that differential charges for the same articles sold or the same service rendered under different circumstances are not necessarily unfair to or contrary to the interest of the payers of the higher charge. We will next inquire how far the principle of making differential charges for services rendered at identical cost to the renderer is confined to commercial transactions. But before doing this, one more analogy is worth notice.

The business of electric supply is usually a monopoly, and in this country it is more often than not in public hands. Yet electric undertakings usually make charges more widely differential than an ordinary railway. A typical charge is 5*d.* per unit for electricity used for lighting purposes ; 1*d.* per unit for electricity used for power purposes. From the commercial standpoint the 5*d.* for lighting is fixed as the maximum which the competition of gas and other illuminants will permit ; the 1*d.* is a charge made to induce users of steam-power, gas-engines, and the like, to adopt electricity as a substitute. As a matter of equity the case is this. The electric undertaking was established originally to supply light. It involved large capital cost for short-lived machinery and mains. Plant and staff must be capable of dealing with maximum demand, and this demand—'the peak of the load', as it is commonly called—only comes for about two hours of the day, and that during the winter months of the year. For twenty hours out of the twenty-four the bulk of the plant is idle ; but interest, depreciation, and standing charges are running on all the time. Such a service cannot but be expensive to give. There is, however, a way to make it less expensive. If consumers can be induced by the low charge of 1*d.* per unit to take electricity for power, they will use it in the day-time, to some extent even in the dead of night, when the machinery would otherwise be idle. The 1*d.*—*ex hypothesi* the highest rate the traffic will bear—will more than cover the extra cost of fuel, and will help to dilute the general expenses of the undertaking. So far from the low differential rate being an injury to, or made at the expense of the consumers of light, the contrary is the case. The standing charges—the great bulk of the whole—instead of being charged on, say, 1 000 000 units, are now spread over 6 000 000, and the cost of supply per unit is proportionately decreased. The increase of the low-charged power customers is the only means by which the lighting customers can hope to see the charges made to them reduced.[1]

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[1] The analogy to the case of a railway is perfect, and at the same time the case, owing to the fact that the electric undertaking supplies one article only, is so much more simple, that it is worth pushing it somewhat further into detail. Suppose that the first 1 000 000 units cost (owing to the very short period of the maximum load) 2*d.* per unit to produce. Suppose that another 5 000 000 units can be produced at an additional cost of ·75*d.* per unit. The total cost for 6 000 000 units is then $\frac{5\cdot75}{6}d.$, or less than 1*d.* per unit. The production cost is halved, and, as the result, the low-priced supply, which was brought in on the basis of merely paying its additional cost, is actually found to be paying the whole of the average production cost and leaving a fraction over to pay interest on capital. Meanwhile an extra 1*d.* out of the 5*d.* paid for each unit by the light consumers has been liberated from meeting production cost and made available to pay interest on capital and depreciation. Clearly the high-price and the low-price consumers are mutually beneficial to one another. Without the high-price consumer the business would never be established. Without the wholesale production made possible by attracting a great volume of low-class business, prices could never be lowered.

Imagine that a further 6 000 000 units would only imply a production cost of ·60*d.* per unit. The total cost for

If we turn from commercial undertakings to professional services, we shall find that the principle of charging what the traffic can bear is universally accepted. Brokers, auctioneers, and the whole army of commission agents work on no other system. You can sell £500 War Loan for a commission of 25*s.*; if you sell £50 000 you will pay 100 times as much. And yet the trouble and expense to the broker is almost precisely the same in the two cases. But the larger transaction can bear the heavier rate, and the broker could not live if all his clients dealt in £500 amounts. A broker's commission does not in all cases increase proportionately with the magnitude of the amount involved, but it always increases, even if at a slower rate. In the case of solicitors, again, the Legislature after many years recognized the absurdity of remunerating them, when concerned in the transfer of property, according to the length of the deed, which presumably was a rough attempt to pay on a 'cost of service' basis, and has enacted that the value of the property conveyed, not the difficulty of the conveyance, shall be the measure of charge. Or take the case of a doctor. The merchant pays a guinea and the clerk 5*s.* for the same advice. If the charge were averaged, the clerk could not pay and the doctor could not live. We may even ascend to a sphere in which commercial considerations are assumed to have slight weight. Fees

12 000 000 units would then be $\frac{5\cdot75+3\cdot60}{12}d. = \frac{9\cdot35}{12}d.$ per unit. The company or municipality could now afford to sell power at $\frac{7}{8}d.$ per unit, with a substantial margin over to reduce the charges for lighting. But the manager must needs have the commercial enterprise and intelligence requisite to gauge the possibilities of development before he makes his reductions. In a summer resort large power consumers will hardly be brought into existence even if electricity is given away gratis.

are charged, under episcopal sanction, to parties about to marry, on one scale if married by banns, and on a higher scale if married by licence; and at funerals, according as the deceased is buried in an ordinary grave, or in a brick grave, or in a family vault. The underlying principle is clear. Somehow, from all his work, the clergyman, the doctor, the solicitor, or the broker must attain an adequate remuneration. That remuneration, if averaged over all the persons he serves, would represent a sum that his poorer clients could not afford to pay. If, then, he refused to serve them, they would suffer, and so would the richer clients, for they would have, by themselves alone, to make up to the solicitor or doctor the total remuneration of which the poorer classes now bear a considerable though not proportionate share.

Yet again. We may pass from the conduct of individuals to the action of the community in its corporate capacity. Our forefathers, thinking truly that the defence of the country was equally the concern of every citizen, levied a poll-tax equal in amount on every inhabitant. Even nowadays French towns raise the money required for their municipal expenditure largely by *octroi* duties on necessaries of life consumed equally by all. But the modern canon of scientific taxation is not equality of payment by each taxpayer, but rather equality of burden or sacrifice. A house in Mayfair, whose occupier is never likely to receive direct benefits from some of the most costly local services, such as poor relief and education, may pay £200 a year towards the local rates, while the occupier of an equally large house in Brixton may pay perhaps a fifth of that sum. The services rendered to the householder in

Mayfair are no more than those rendered in Brixton; but the former occupies a house five times as valuable, and it is therefore assumed that he can afford to pay five times as much. So with imperial taxation. Not only is the larger part of the revenue raised from only a small portion of the community, but certain taxes are definitely graduated to favour the poor and lay extra burdens on the rich. Only one of the latest and most conspicuous instances need be mentioned—the estate duty, which ranges from nothing in the case of very small estates to no less that 40 per cent. of the amount in the case of property reaching upwards of £2 000 000. Broadly speaking, whatever complaint may be made of the graduations of the existing scale, no one questions the justice of the principle. The revenue must be raised somehow. The mass of the community can only pay small sums, the millionaire's estate can bear a differential rate.

We have now discussed the meaning of the phrase 'charging what the traffic will bear'. We have seen that the underlying principle is one not of extortion, but of remission and alleviation. We have seen further that, so far from being in any way peculiar to railways, it is a principle which not only pervades all business and all commercial and professional life, but is applied by the people at large, both locally and in their national capacity, as the true basis for a system of taxation, broadly equitable between the different classes of the community. We have next to discuss the method in which this principle is applied in railway practice.

CHAPTER X

THE METHOD OF CHARGING

CLASSIFICATION

Previous chapters have afforded a general survey of the essential features of the business of a railway. From the point of view of expenditure, we see that these features are a large preliminary expenditure of capital, which once spent is fixed and irrecoverable, and a large current expenditure of income on the maintenance and operation of the line as a whole, independent in great degree of the volume, independent almost wholly of the particular categories and items of traffic carried over it. From the point of view of income, we come to the conclusion that, as the expenditure belongs almost entirely to the line as a whole, it is impracticable to fix rates with any approach to accuracy on the basis of what the traffic costs to carry. And further, if it were possible, it would not be expedient or in the public interest. For to charge against each category and item of traffic not only its own special costs, but also its full share of general expenses and interest on capital, would mean to shut out from carriage much traffic that in the interest of the community ought to be carried; it would mean, further, a great restriction of the total volume of potential traffic, and so a higher average rate on the traffic actually carried.

Railways, therefore, in every country have followed the same general line of development. Beginning with a small traffic at high rates, they have gradually by lower and lower rates attracted a larger and larger volume of traffic, partly articles of lower and lower value, partly articles of medium value, carried for longer and longer distances. Into the fixation of the rates for such articles ‘ cost of service ’ has only entered to the extent that the rates could not, broadly and in the long run, be put lower than the point at which the amount received for carriage covered the extra cost of the special service involved. Subject to this inferior limit and to a superior limit—rarely reached in modern practice, except in the case of goods of small value in proportion to bulk—that no rate, once it covers actual cost, shall be so high as to stop the traffic from going, the rates *inter se* are, as we have seen, fixed on the basis of what the traffic can bear. In other words, the traffic as a whole pays the expenses (including interest on capital) as a whole. And of that whole each item and category of traffic pays such proportion as it is fairly able to pay. The apportionment is only a rough and approximate one, for it is made by fallible men on imperfect data. But it aims at least to distribute the burden according to the strength of the shoulders that bear it.

Finally, we have seen that this principle of charging is in no sense special or peculiar to railways; that all highly-organized industrial and commercial undertakings obtain their income on the same basis; that the principle applies generally to professional incomes; and that local and national taxation is not only imposed in accordance with it, but is commonly and rightly regarded as being properly so imposed. But we have noticed one point where the analogy of taxation fails. From the tax-collector there is no escape. If the Chancellor of the Exchequer decides that cigars can bear an extra tax of 1*s*. per lb.—over £100 per ton—the merchant has to pay. But if the railway manager decides that cigars can bear an extra railway rate of 10*s*. per ton, the merchant will not pay it if he has access to another and cheaper means of conveyance. 'Can bear' therefore, we must remember, must be not only 'is able' but 'will consent to bear'; and a good deal of the difficulty of railway-rate questions arises from this double meaning of the phrase. Let us now consider the methods and machinery by which the principle of charging what the traffic will bear is actually put into operation.

Theoretically, each category, each item of traffic, has its own capacity to bear a railway rate. A millionaire would pay more than an ordinary first-class passenger before he would desist from travelling; wine may be worth a shilling or a pound per bottle; and so on. But in practice millionaires and rare vintages are negligible quantities; it is impossible to strike a separate bargain with each passenger or each consignor, and simplicity and ready intelligibility are much more important than theoretic equity. Accordingly, even before railways were invented, the canals had developed a rudimentary classification with corresponding scales of rates.

But here a point of importance deserves special notice. New means of inland communication, whether canals, railways, tramways, or motor roads, cannot in ordinary circumstances be opened without special authority from Parliament. For power to take or interfere with land by compulsion, and to alter, divert, or obstruct public highways and rivers, is almost always an essential pre-requisite of construction. And in this country the Legislature from the earliest times down to the Railways Act of 1921 never gave the promoters the necessary powers without laying upon them a corresponding obligation, and limiting the charges to be made to the public for the use of the means of communication provided. We have therefore, preserved in the Statute Book, the list of ‘ tonnage rates ’—in modern language, the classification and scale of maximum tolls—originally authorized to be charged on every canal in the country. How far the maximum tolls were in fact generally enforced we cannot know nowadays. Records have mostly perished. But we cannot doubt that the statutory tolls represented in their day the resultant of the opinion of promoters on the one side and public authorities on the other as to the basis of charge that was reasonable and proper. And when we see the simplicity of the early scales, and their progressive elaboration as time goes on, we can still less doubt that we see before us the gradual growth of knowledge as to the true economic basis of rates.

Now let us turn to the specific instances, not forgetting that they represent, not possibly what the canal company ever did charge, but what Parliament at least considered it might be just that they should charge. Notice, too, that canal tolls are only a charge for the use of the waterway. Cost of carriage, for which each individual consignor either made his own arrangements or entered into a contract with a carrier whom he selected, is a separate thing altogether, with which the statutory canal schedules have no concern.

The Glamorganshire Canal dates from 1790. Its schedule of tolls is simplicity itself.

Tonnage Rates.	per ton per mile.
Ironstone, iron ore, coal, limestone, lime, and all kinds of manure	2*d.*
Stone, iron, timber, goods, wares, merchandise, or other things	5*d.*

The schedule of the Peak Forest Canal, sanctioned only four years later, is somewhat further developed and more typical.

Tonnage Rates.	per ton per mile.
For all limestone	1½*d.*
For all stone (except limestone), lime, coal, and other minerals	2*d.*
For all dung, clay, sand, and gravel not passing through a lock	1*d.*
For all dung, clay, sand, and gravel passing through a lock	2*d.*
For all timber, goods, wares and other merchandise, and all other articles, matters, and things not herein-before particularized	3*d.*

Here is a third schedule, dating from 1815, that of the Sheffield Canal. It may be taken as showing the most advanced form of the old canal schedules.

Tonnage Rates.	per ton per mile.
For all coal, coke, charcoal, limestone, ironstone, slag, sand, arsura, sweep-washing waste, stones, slates, pavors, cord-wood, cinders, manure, bones for manure, turnips, carrots, and potatoes	2*d.*
For all pig-lead, pig-iron, ballast-iron, nut or bushel-iron, old cast-iron, bricks, old ropes and rags, timber unbroken, bones and hoofs	3*d.*

TONNAGE RATES	per ton per mile.
For all bar, rod, or rolled iron or steel, cast-iron goods, deals and other broken timber, lime, onions, apples, pears, peas, beans, rape, line, cole, mustard seed, and all kinds of green groceries that are not by this Act specially charged by name	4*d.*
For all dry groceries, and all kinds of manufactured goods, wares, and merchandise, in casks, hogsheads, or other packages	5*d.*
For all corn, grain or malt, 1*d.* per quarter [=roughly	5*d.*]
For all other goods, matters, and things not specially charged	6*d.*

Now it will be observed that the whole reason for the existence of this classification is ability to pay. The canal company did not handle the traffic, did not carry it, did not insure it. A ton of potatoes cost them neither more nor less than a ton of apples. Yet the potatoes were to be charged only half as much as apples. Old rope, it was thought, could only bear a toll of 2*d.* New rope could bear 6*d.*, and 6*d.* it accordingly had to pay. For an all-round toll of 2*d.* per ton-mile would not, in days of undeveloped traffic, adequately remunerate the proprietors ; goods of small value could only bear 2*d.*, therefore goods of higher value must pay up to three times as much, so that the average toll may be sufficient.

The earliest railways were like the canals in that the traffic for which they were intended—goods only, not passengers at the outset—was to be conveyed, not by the company, but by private persons in their own vehicles, hauled by their own horses. An early railway schedule of tolls differs therefore in no respect from a contemporary canal schedule. Here are the toll-rates as authorized in 1801 for the first public railway which ever obtained an Act of Parliament, the Surrey Iron Railway, intended to connect Croydon with the Thames at Wandsworth.

Tonnage Rates.	per ton per mile.
For all dung carried on the railway	2*d.*
For all limestone, chalk, lime, and all other manure (except dung), clay, breeze, ashes, sand, and bricks	3*d.*
For all tin, lead, iron, copper, stone, flints, coal, charcoal, coke, culm, fuller's earth, corn and seeds, flour, malt, and potatoes	4*d.*
For all other goods, wares, and merchandise . .	6*d.*

The Rhymney Railway in the South Wales coal-field was authorized in 1825. A heavy traffic was unquestionably available, and promoters and the Legislature had, by this time, some conception of the capacity of a railway. Accordingly, we find the maximum tolls of the Surrey Iron Railway cut in half. Otherwise the schedule and the ratio between the highest and lowest classes are much the same.

Tonnage Rates.	per ton per mile.
For all limestone, lime, materials for roads, dung, compost and all sorts of manure . . .	1*d.*
For all coal, coke, culm, cinders, stone, marl, sand, clay, iron, ironstone, iron ore and other minerals, building stone, pitching and paving stone, bricks, tiles, slates, and all gross and unmanufactured articles and building materials	1½*d.*
For all manufactured or unmanufactured iron . .	2*d.*
For all lead, timber, staves and deals, and all other goods, wares, and merchandise	3*d.*

The year 1825 marks roughly the close of the first period of railway development, for the Stockton and Darlington Company had obtained power to use locomotive engines two years before. Moreover, 1825 saw the first promotion of the Liverpool and Manchester Railway, and in the following year the original Act of the company was passed. And the Liverpool and Manchester Company expected from the beginning that passengers would use their line, and were authorized themselves to become carriers both of passengers and goods thereon, which in fact they were from the opening of the railway in 1830. It is interesting to note, as showing how entirely separate the businesses of road-owner and carrier were considered to be in those early days, that an Act of the Liverpool and Manchester Company in 1828 provided that, for the purpose 'of forming an establishment for the carriage of goods', a separate fund of £127 500 should be raised; that the accounts of this department should be kept separate; and separate dividends be made in respect thereof. The Liverpool and Manchester was to carry on, not one business, but three. It was to take tolls for the use of the road (1) by goods, and (2) by passengers; further, (3) it was to act as a common carrier of both on its own road. So it needed to have not one but three schedules of authorized charges. The first is the familiar :—

TONNAGE RATES.	per ton per mile.
For all limestone	1*d.*
For all coal, lime, dung, compost, manure, and material for roads	1½*d.*
For all coke, culm, charcoal, cinders, stone, sand, clay, building, paving and pitching stones, flags, bricks, tiles and slates	2*d.*

	per ton per mile.
For all sugar, corn, grain, flour, dye-woods, timber, staves, deals, lead, iron and other metals	2½*d.*
For all cotton and other wool, hides, drugs, manufactured goods, and all other wares, merchandise, matters and things	3*d.*

Then follows new matter to meet the new conditions. Chaises, gigs, coaches and passengers and cattle may pass on the railroads by paying :—

	s.	*d.*
For every person travelling thereon not more than ten miles, in any vehicle	1	6
For ditto, exceeding ten miles but not above twenty	2	6
For ditto, above twenty miles	4	0
For every horse, mule, ass or other beast of draught or burden, and for every ox, cow, bull or neat cattle carried in or on such carriage, not exceeding fifteen miles	2	6
For ditto, exceeding fifteen miles	4	0
For every calf, sheep, lamb, or pig, any distance	0	9

This second table is, it will be observed, also a schedule of tolls. It includes neither motive power nor the provision of vehicles. The vehicles, like the canal boats, went free. The toll was charged on their contents.

Lastly, we have the following table of authorized charges for carriage, the earliest form of what is now technically known as a 'schedule of maximum authorized rates'.

The proprietors may carry goods, &c., of all descriptions upon the said railroad, and charge for the same, *including the before-mentioned rates* (tolls), the following :—

CARRIAGE RATES.	per ton. *s.*	 *d.*
For all lime, limestone, dung, compost, manure, and materials for roads, stone, sand, clay, building, pitching and paving-stones, tiles, slates, timber, staves and deals	8	0
For all sugar, corn, grain, flour, dye-woods, lead, iron and other metals	9	0
For all cotton and other wools, hides, drugs, groceries and manufactured goods	11	0
For all wines, spirits, vitriol, glass and other hazardous goods	14	0
	per mile.	
For all coal, coke, culm, charcoal, and cinders	0	2½

All shorter distances in proportion.

For all persons, cattle, and other animals, such rates as the company may decide upon.

Two things are here noticeable. Maximum rates are fixed for goods, not for persons, cattle, and other animals. Evidently it was supposed that coach proprietors and drovers would be able to compete with their own vehicles and so keep down prices. Further, though the goods *tolls* rise from the lowest to the highest class of commodities in the ratio of 1 to 3, the goods *rates* only rise in the ratio of about 1 to 2.[1] For, taking the railway as thirty miles long, 2½*d.* per ton per mile for coal would give a total rate of 2½*d.* × 30 = 6*s.* 3*d.* for coal, against 14*s.* in the highest class. Clearly, the theory was that, as the cost of carriage was much the same for all classes of traffic, it should be charged alike to all; the toll it was that should depend on the differential ability of the traffic to bear the rate.

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[1] A toll is a charge for the use of the road. A rate is an inclusive charge for the use of the road and the service of carriage over it.

There would be no profit in tracing further in detail the history of statutory maximum schedules during the sixty years subsequent to the opening of the Liverpool and Manchester Railway. Indeed, the ‘ tonnage rates ’ or merchandise tolls have no subsequent history. They are still repeated as a matter of form in every Act incorporating a new railway company, very much in the shape which they assumed nearly a century ago. But nowadays the railway company is the sole carrier on its own line—or if another company carries under ‘ running powers ’, given by statute or by agreement, it carries not as a toll-payer, but on special terms prescribed *ad hoc* by the instrument authorizing it to carry—and toll-clauses are for practical purposes as obsolete as the royal veto.

Carriage or conveyance rates were modified somewhat in the twenty years succeeding 1825. Gross sums were replaced by charges per mile. Sometimes an intermediate scale, higher than the toll but lower than the inclusive conveyance rate, was inserted to meet the case, which never can have been anything but quite exceptional in practice, where the company furnished the motive power, possibly also the vehicle, but did not act as carrier. Maximum charges for the carriage of passengers, cattle, and other animals were also fixed, as soon as it became clear that of this business railway companies must have a monopoly. But from about 1845, when the statutory schedules became practically stereotyped, till 1891, when Parliament again effectively interfered in the matter of classification and maximum rates, railway history is concerned not with legislation, but rather with the almost independent action of the companies themselves.

The goods classification, as Parliament left it, enumerated, as we have seen, some forty articles, usually divided into four classes. All the hundreds and thousands of articles known to commerce, if unenumerated, were legally chargeable as ‘ other articles, matters or things ’ in the highest class. Further, the statutory classification was based on the fundamental conception of a company that was a toll-owner only, not a carrier ; and the railway companies had all become carriers. Now to a toll-owner the method of packing, damageability, relation of bulk to weight, and average size of consignment matter not one whit. To the carrier they matter a very great deal. Yet again. The statutory classifications were local to each company, and often differed fundamentally between two neighbouring systems or even two adjacent parts of what had in the course of time become the same system. A still more serious point, the statutory maxima were fixed at so much per mile. Terminal accommodation and terminal services before and after conveyance were entirely independent of the length of haul, which was the sole consideration governing the quantum of the statutory charge. Was the statutory charge intended to cover this accommodation and these services, or was it not ? Naturally, the traders took the one view, the railway companies the other ; and a controversy between them smouldered for a generation, breaking out at intervals into open fire, till at length, about 1890, it was decided, first in the law courts, and then by Parliament, substantially in favour of the railways.

But long before this the railway companies had acted on their own responsibility, and, working through the instrumentality of the Railway Clearing-House, which was established in 1842 and incorporated by Act of Parliament in 1850, had elaborated for themselves an adequate classification, which, for through traffic at least, applied all over the country. The three, four, or five classes of the statutory classifications were expanded to seven. At the bottom of the scale was a Mineral Class, divided into two sub-classes, known as M(A) and M(B). This class applied only to minimum consignments of 4 tons, loaded and unloaded by the owners, and the rate covered only carriage from station to station. In M(A) was included primarily coal, but also coke, iron ore, and furnace slag. M(B) was a much longer list, and contained other primary articles of equally small, sometimes even of less value, which, however, are not consigned in great quantities like coal and ironstone. Clay, sand, manure, limestone, chalk, salt, or stone in the rough are typical of this sub-class, though it also contained ores of poor quality, such as those of zinc and copper, and some articles of simple manufacture, such as bricks, paving-stones, pig-iron. Then came Class S (Special), applicable to consignments of not less than 2 tons, carried from station to station only, and comprising among the more important articles, hay and straw (machine-pressed), grain, flour and seeds, artificial manures, chemicals, lead ore, and rough iron goods, such as rails, bars, girders, and the like. Generically, the goods in this part of the classification—the lettered classes—were known as S to S (station to station) traffic, because the companies normally undertook conveyance only and were not responsible for loading and unloading at the two ends. As a rule they travelled in open, uncovered trucks, and were loaded and unloaded on sidings and not in the goods shed.

Above the lettered classes came five classes, numbered in ascending order from 1 to 5.[1] The rates for these classes were known as C and D (collection and delivery) rates, because they included not only carriage on the railway, but also collection beforehand from the consignor and delivery afterwards to the consignee, if within a reasonable distance.[2] They were charged, to use the French phrase, without condition of tonnage, except that for consignments less than 500 lb. a surcharge was made beyond the regular tonnage rate. The goods in the numbered classes usually required to be protected from the weather in transit and to be loaded and unloaded under cover; consequently they were often known as 'shed goods'. Moreover, the service of loading and unloading was performed by the company, and the cost of it included in the gross rate charged.

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[1] English railways, like English schools, showed their insularity by numbering the opposite way from the rest of mankind. The English Sixth Form is the German or French *Prima.* To a non-Englishman a 'first-class rate' means the highest rate charged. The origin of the opposite practice on English railways is evidently that the statutory classifications, though they gave no numbers, always enumerated the lowest classes first.

[2] The system of including cartage charges in the railway rate is peculiar to England, and will disappear when the new standard rates are fixed. In most other countries the railway organization will perform the services, either directly or through its agents, but a distinct extra charge is always made for it. Comparisons between English and foreign railway charges are often unfair because no allowance is made for this important difference. The railway companies south of the Thames used not to conform to this system, and they continued after 1892 not to do so, so far as their own local traffic was concerned.

The system of including cartage charges in the railway rate had one curious result. At a small country station the railway company did not and could not maintain a cartage staff; the consignee therefore had to fetch away his own goods. But he was charged a rate based on the supposition that they were delivered to his door, as in fact they were to the consignees in the adjoining town, free of charge. In such cases, where a railway customer knew his rights and was insistent to obtain them, a 'cartage drawback' was allowed according to an established scale.

Here are specimens of the articles included in the five classes:

Class I. Iron and steel hoops, pipes, sheets, plates. Common vegetables and fruits. Paper-making materials and common paper. Raw cotton. Ship or dog biscuits. Bottles (common). Beer in casks. Tallow. Oil in casks. Light scrap iron. Tin ore.

Class II. Mineral waters. Beer in bottles. British wine in casks. Cured bacon (packed). Biscuits. Brass. China in casks or crates. Coco-nut matting. Nickel ore.

Class III. Cotton and linen goods. Cured bacon, unpacked. Blankets. Books. Boots in casks, cases, or boxes. China in hampers. Woollen cloth packed in trusses, packs, or bales. Tea. Silver ore.

Class IV. Pine-apples. Boots in white rod hampers. Fresh hams or bacon. Brooms and brushes not packed. China in boxes or cases. Woollen cloth in boxes, cases, parcels, or hampers.

Class V. Amber. Aniline dyes. Peaches and apricots. Bonnet boxes. Basket work. Bismuth. Boots in hampers (except white rod). Clocks. Millinery. Artificial flowers. Silk.

It has been already observed that the classification of goods from the point of view of a toll-owner is different from that which is reasonable for a carrier. The toll-owner is concerned only with the value of the goods, that is, with their ability to bear a higher or lower rate. The carrier has also to regard the differences between goods as they affect cost of carriage. From this point of view he considers bulk in proportion to weight, method of packing as it affects both convenience of handling and loading and liability to damage, and the average quantity carried in one consignment, more especially if, like guano or gas-lime, the article is one which from its nature must be loaded separately. Now a railway company combines the functions of the toll-owner and the carrier. Naturally therefore the classification partakes of the features of both its parents, and sometimes the one feature and sometimes the other predominates. Take ores, for instance, ranging from iron in the lowest class of all, right up to silver in Class III. Here the dominant, almost the sole, reason of the classification was value. On the other hand, few things are more valueless than old tin kettles. But, in railway phrase, they give ‘uncommonly bad loading’, so cost-of-carriage motives forced them into Class I as ‘light scrap iron’, and the value principle had to give way. An illustration of the conflict of the two principles may be found from the various entries of china: china in casks or crates, Class II; china in hampers, Class III; china in boxes or cases, Class IV. Evidently china in a box will pack better into the truck than china in hampers. Evidently also it is less liable to injury. But experience showed that the custom was to pack the more valuable kinds in boxes, the cheaper kinds in hampers. So china in boxes is classed highest, both as better able to bear the rate and also as likely to lead to heavier claims for breakage. One more illustration may be given. The value of beer is much the same as that of British wine, and the casks are the same. But British wine is consigned in single casks ; beer in truck-loads, if not train-loads. So beer appeared in Class I, the wine in Class II.

A still more striking instance is afforded by the classification of hay. Hay, as cut from the stack and hand-trussed, loads so badly that an ordinary wagon is generally full with little over 30 cwt. In consequence the traffic is placed in the relatively high Class II. When hay is compressed with a hand machine, 40 cwt. can be loaded in a wagon, so it is graded in Class I ; whilst, when the hay has been hydraulic press-packed, a wagon will hold at least 3 tons, and Class C rates are applied. Now the cost to the railway of moving a truck loaded with 30 cwt. of hay is only infinitesimally less than when the truck is loaded with 3 tons. As will be seen later in the chapter dealing with rates, the receipts from the 30 cwt. at the higher rates will be lower than from the 3 tons at the lower rates. But the rate on the hand-trussed hay is so high in comparison with the value of the article that the farmer who cannot command the use of a press is shut out from any market outside his immediate neighbourhood. In this case it is evident that the predominant factor in fixing the classification was not ‘ what the traffic can bear ’, but ‘ what the railway can bear ’.

So far, we have been dealing with the classification which the English railway companies, with neither help nor hindrance from public authority, worked out for themselves in the first fifty years of their history.

Many of the charges made under it were probably extra-legal, some were doubtless positively illegal. But on the other hand, the classifications and charging powers embodied in the companies' Acts were as obsolete as the Cambridge Statutes requiring undergraduates to wear sub-fusc garments and to refrain from playing marbles on the Senate-House steps, and the trade of the country could not possibly have been conducted under them.

In the hands of the companies and the Clearing-House the classification grew rapidly. In 1852 there were 748 articles enumerated, or, to speak more accurately, enumerations of articles; for the same article, as we have seen, often appears several times over. In 1860 the number of entries was 816, in 1870 it was 1621; in 1880 it had risen to 2373, and in 1886 to 2753. Of these 2753 entries, 103 referred to articles outside the ordinary classes, the remaining 2650 were thus apportioned:—

Mineral (A) and (B)	80
Special	446
Class I	453
II	500
III	672
IV	319
V	180[1]

And the vast proportion of these articles, having been left unenumerated by Parliament, were legally 'other articles, matters or things' for which the companies were entitled to charge their maximum rates.

In subsequent chapters we shall deal with the two later stages of the history of classification in this country: the first, the establishment of a statutory maximum classification which came into force in 1893, but which left the Clearing-House classification in the main unaltered; and secondly, the radically new classification which has been drawn up under the Acts of 1919 and 1921, but has not yet come into force, and which substitutes for the old eight no less than twenty-one classes.

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[1] *Railway Rates, English and Foreign.* By J. Grierson. London, Stanford, 1886.

CHAPTER XI

THE METHOD OF CHARGING

RATES

In the last chapter we traced in some detail the growth of the English railway classification. But a classification by itself is nothing; it is only the foundation on which the edifice is to be built up—the framework to which the tariffs or schedules of rates are to be attached. Each class of the classification presupposes and requires as its necessary complement a table of rates chargeable for the carriage of the articles comprised in the class.

And here an author, writing from the English point of view, is at a serious disadvantage. Other countries have normal mileage tariffs. Such tariffs may be subject, indeed are subject, to exceptions so numerous that the normal tariffs sometimes disappear from sight altogether. But normal tariffs at least exist; they are printed in a convenient form; they can be studied; and the scheme of charge on which they are based can be ascertained and critically discussed. In Great Britain, alone perhaps of civilized countries, there is no recognized normal tariff of goods rates for any individual company, still less for the railways of the country as a whole. The explanation of this anomaly—so far as it is not due to the instinctive hatred of the practical Englishman for logic and symmetry—must be sought in history.[1]

The original statutory maximum schedules were, as we have seen, quite symmetrical—one penny, twopence, threepence for each mile travelled. But these schedules only applied to quite short distances—the Great Northern Railway, 162 miles from London to Shaftholme Junction, 4 miles north of Doncaster, was probably the longest line ever sanctioned by a single Act; a quarter of this length would be more like the average. The statutory maxima of the North-Western from London to Carlisle were contained in half a dozen different Acts for separate sections of the route—the North London, the London and Birmingham, the Trent Valley, the Grand Junction, the Lancashire Union, the Lancaster and Carlisle, and probably others. Moreover, as we have also seen, the statutory schedules with their rudimentary classifications dropped into practical abeyance at a very early date. Even had they remained operative, they could not have had much real influence on the situation. For distances in England are so short; competition by sea, canal, or rival railway is so ubiquitous, that even after twenty or thirty miles a mere mileage tariff may often become unchargeable. And if normal mileage tariffs were not chargeable, where, would naturally ask the practical man, was the use of compiling them, especially as there was no regulation requiring that rates should be published before they were put in force?

An English manager therefore has not, and never has had, a formal tariff, by consulting which he can say—as his French or German or American colleague could say at once—what is his normal rate for Class I traffic for thirty miles, Class III traffic for seventy-five miles, and so on. He possesses no general table of rates; only an immense number of separate and individual tables; one table of the rates chargeable from station A *nominatim* to all the other stations with which it exchanges traffic; a second table of the rates chargeable from station B *nominatim* to all other stations, and so on; as many separate tables as there are separate stations. Not merely, be it observed, is there no normal mileage tariff common to the whole country, or even to the entire system of a particular company; no individual station even has a mileage tariff taking that station as a basis; each station has merely a rate-book stating the distance and the charge made therefor, according to class, to each other station with which through rates are in operation.

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[1] Something will have to be said later as to the normal tariffs which the railways have worked out in accordance with the Act of 1921 and submitted to the Railway Rates Tribunal, but which have not yet been taken into consideration.

Now scales of charge which have grown up in this unsystematic way must naturally contain a good deal of what is mere accident that could not be explained on any logical grounds. But for all that, there must exist an underlying system. A rough outline of the English system of rates as it exists, and postponing for the present the discussion of the changes introduced in 1891, when Parliament interfered to recast and simplify and modify the system, and of the still more sweeping changes shortly to be made, is as follows. At any given station there is a rate-book, giving rates from that station for each of the classes of the classification to all the stations on each side to which traffic is booked. And, except for goods in the lowest or lettered classes, these rates, technically known as 'class rates', include, as has been already said, the services of 'collection and delivery'; that is, fetching the goods from the door of the consignor and delivering them to the door of the consignee. Now collection and delivery are not only expensive, but they are equally expensive whether goods are carried on the railway for ten miles or five hundred. The same may be said of terminal service and accommodation when the goods reach and leave the railway line. Sorting, weighing, invoicing, loading, unloading, checking, &c., have to be performed and paid for.[1] Further, the Company has to keep accounts, make out bills and wait as a rule for a month before it receives payment. Yet another point must be noticed. Rates are charged per ton, but a reference to the typical articles enumerated in the last chapter will show that, in the higher classes of the classification, goods are not likely to be often sent except in quite small consignments; and therefore the rates quoted for them must, as a matter of business, be fixed on the assumption that such will be the case. Now small consignments mean to a railway several distinct sources of serious additional expense: separate collection and delivery, separate handling, invoicing, accounting, &c., at the terminal stations ; bad loading in the railway wagons, probably one or more transhipments *en route,* and extra liability for loss or damage.

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[1] The companies as between themselves—when, therefore, they had no motive for exaggerating—reckoned before the war that terminal service, including collection and delivery, cost on the average 8*s.* 6*d.* per ton in London, 4*s.* per ton elsewhere. In other words, if a ton of goods had been sent from London by the Great Eastern to Halstead on the Colne Valley Railway, a distance of sixty-six miles, supposing the rate charged to have been 15*s.*, then the Great Eastern Company would have taken out of the 15*s.*, 8*s.* 6*d.* for terminal in London; the small company 4*s.* for terminal at Halstead. The remainder, 2*s.* 6*d.*, attributable to conveyance proper, would have been divided between the two companies in proportion to mileage, $\frac{52}{66}$ to the Great Eastern, $\frac{14}{66}$ to the Colne Valley Company.

The examples which follow are designed to illustrate the practical working out of the foregoing principles. They are based on pre-war rates and conditions. The alterations in rates made in the last few years, both upwards and downwards, have been so frequent and so drastic that normal conditions have never been re-established. Future editions of this book may have to deal with the yet more drastic changes called for under the Railways Act 1921. But the time for this has not yet come, for though the outlines of the new system are already sketched out, it is not yet possible to fill in the details.

As has been said above, short-distance traffic is relatively more expensive than long-distance traffic. High class traffic goes in smaller quantities than low class, and small consignments are exceptionally expensive to handle. Naturally, therefore, rates for short distances will show excessively steep gradations from the lowest class to the highest. A rate for six miles may be in Class A, 9*d.* ; in Class V, 12*s.* Class A rate assumes a truck, the property of a private owner, handed to the company ready loaded with coal at a colliery junction. The company has only to attach the engine, marshal the truck into a train, haul it to destination, and hand it over to the consignee to deal with. In other words, the out-of-pocket expenses which the rate has to cover are little beyond those for actual haulage. On the other hand, the charge for what may be called the rent for the use of the line will be comparatively high as, whilst an express passenger train occupies a mile of line for about one minute, a mineral train occupies it for five. But in Class V the 12*s.* rate is charged, let us say, on 5 cwt. of straw hats from Luton to Dunstable. The company in this case has to fetch several large cases from the factory at Luton, load them in a shed into the truck, carry them on the railway, unload them at the other end, cart them to the consignee, and insure their valuable and fragile contents against loss or damage throughout. For all this it receives 3*s.* Further, it is to be noted that the truck of coal contained 10 tons ; the truck with the hats is hardly likely to carry more than 1 ton. Nominally, the railway rate is 1½*d.* per ton per mile for the coal, 2*s.* per ton per mile for the hats ; yet it may well be that the former rate is too high, the latter too low.

Another point may be observed. Except for small miscellaneous consignments, the 12*s.* rate is largely what is called a ‘ paper rate ’. That is, it is not a rate at which traffic will really pass. Any one with regular business in hats between Luton and Dunstable would find it much better worth his while to cart his goods all the way than to pay the railway charges. It comes to this. The railway for high-class goods carried short distances cannot afford to make anything but a very high charge per mile. That charge is higher as a rule than the traffic will bear. Therefore the traffic does not come to the railway at all. On the coal, on the other hand, the railway can afford to make a charge much lower than the coal-owner could obtain by any other means of carriage, and therefore the railway gets the traffic.

Now let us suppose a distance of 100 miles instead of six. Here the Class A rate will be probably about 6*s.* ; Class V, say 35*s.* The ratio between the two rates has become six to one instead of sixteen to one. The coal rate has increased eightfold, but the distance sixteenfold. The highest-class rate, however, has increased less than threefold. The coal rate has increased much more proportionately than the Class V rate, because it was based almost wholly on mileage, while the other rate was mainly made up of terminal charges at both ends which are quite independent of mileage. We may suppose that the terminal services on the high-class traffic absorb 10*s*. per ton. We have then left a conveyance charge of 2*s*., which is equal to 4*d*. per mile for the shorter distance, and of 25*s*., equal to 3*d*. per mile for the longer distance. In the case of the coal we may neglect the terminal charges altogether, and say that the rate is 1½*d*. per ton-mile for the shorter distance, ¾*d*. for the longer.

The conveyance rate per mile, it will be observed, falls in both cases as the distance increases, and this is explicable on two grounds. On the one hand, it costs a good deal less to carry 1 ton a hundred miles than to carry 16 tons six miles, though in each case the process is expressed as the carriage of 100 ton-miles.[1] On the other hand, traffic becomes less and less able to bear the rate as each successive mile is travelled and charged for. The former consideration—that based on the cost to the railway—applies equally to traffic of all kinds. The latter—based on the capacity of the customer to pay—naturally applies with steadily decreasing force as the value of the article carried increases.

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[1] Broadly, for these reasons, long hauls get more mileage out of engines, wagons, train-staff, &c., than a number of short hauls, necessarily with waits between; engines and wagons are better loaded; and the traffic is spread more evenly over the length of the line.

In the case of coal, where the difference between pit cost and the effective demand price at the consuming point is not many shillings, it applies early and forcibly. In the case of hats worth very many hundred pounds per ton, it hardly begins to apply even where rates are the highest and distances the longest practically attainable on railway lines. So we see that, whereas the unaided cost-of-carriage principle only brings down the hat-rate from 4*d.* to 3*d.*, the combination of the two principles brings down the coal-rate from 1½*d.* to ¾*d.*, a ratio in the former case of four to three, in the latter of two to one.

Now let us put our imaginary pair of stations 150 miles apart. Here the scale of rates would be probably something as follows :—

Class A,	8*s.*	Class II,	25*s.*
,, B,	11*s.*	,, III,	32*s.*
,, C,	15*s.*	,, IV,	40*s.*
,, I,	20*s.*	,, V,	47*s.* 6*d.*

Coal begins to touch the maximum rate that it can bear ; consequently it is only charged an extra 2*s.*, or less than ½*d.* per ton-mile, for the additional fifty miles. The hats, on the other hand, are charged at the full rate of 3*d.* for each additional mile. The total rate per mile is lower for 150 than for 100 miles, because the terminal charges are spread over a longer distance. But the mileage charge is not further decreased. And this is but reasonable, for it is in the case of comparatively short hauls that an increase of conveyance distance causes a rapid decrease of conveyance cost per mile.

Beyond this distance of 150 miles it is useless to trace the growth of mileage rates. They are beginning to be rates that traffic in the lower classes cannot bear. They may exist in the rate-book, but they will be little more than ' paper rates '. Even the high-class rates will not show any regular arithmetical progression. Not that hats and the like could not bear a rate of 85*s*. for 300 miles, 110*s*. for 400 miles, and so on. But, as has been pointed out earlier,[1] ' can bear ' means sometimes ' is capable of bearing ', sometimes ' will consent to bear '. From London to Edinburgh the hat-rate is fixed, not according to abstract considerations of justice and equality of sacrifice, but at a price just so much above the cost by steamer as the hatter will consent to pay for the superior speed, safety, regularity, frequency, and general convenience of the railway service.

But water competition is not the only factor to disturb the symmetrical progression of the mileage scales. Even after the recent amalgamations, between many pairs of large towns in this country there are competing railway routes of different lengths. From London to Manchester, for instance, there are various routes, of which the shortest and the longest are 184 and 238 miles in length respectively ; from London to Exeter, till the Great Western opened its direct line via Westbury, there were two, 171 and 194 miles ; from London to Bristol there is the direct route of 118 miles and a circuitous route nearly twice as long via what was the Midland railway, passing from Birmingham through Worcester, Cheltenham, and Gloucester, at all of which points the Midland route is cut by a direct Great Western line from London. That the long line cannot charge more than the short line to the competing point is obvious. So, as the phrase goes, ' the short line rules the rate ', and the Great Eastern route had to accept North Western rates, based on its 184 miles, to Manchester, and these were the mileage rates entered in the Great Eastern Company's London rate-book. But what of the stations situated on the Great Eastern route short of Manchester, but more than 184 miles from London; on the Great Western more than 171 miles from London, but short of Exeter; on the Midland between Birmingham and Bristol?[1] Three solutions are possible. The rates to the last few Great Western stations into, say, Exeter, may be made the same as the rates to Exeter, or they may rise to the highest point at about 183 miles from London and fall again as Exeter is approached. Or lastly, the company may, if the disparity of distance is too great, not attempt to touch the competitive business and keep up its local rates. It depends on a number of circumstances which of these solutions is actually adopted. The instinctive desire of the company will naturally be to keep up the local rates, and at the same time to put the rates to the competitive point down to the level of the rates of the short-distance rival. But to charge more for the short haul than for the long, though often perfectly justifiable from the economic point of view, has an appearance of injustice, and is often made impossible by public opinion, even if not by positive law.[2]

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[1] See p. 93.

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[1] It has seemed less puzzling to use the names of the old companies. The railway student will be able to see for himself how far the old conditions are affected by the new amalgamations.

[2] There are in the United States 'long and short haul clauses', of various degrees of severity, in the railway law both of the Federal Government and of most, if not all, of the separate States of the Union. Our own law (Railway and Canal Traffic Act, 1888, sec. 27 (3)) empowers but does not

So far we have been dealing with the normal scales of rates which are professedly based on mileage. When we consider the ubiquity in this country of railway competition, even for quite short distances, and of water competition for longer distances, and when we realize further that competition necessarily upsets the mileage scale, not only at the competing point but within its whole range of influence, we are able to appreciate that even these normal scales are far from being symmetrical mileage tariffs. But this is not all, nor indeed the principal part of the story of English railway rates. Our mileage rates, speaking broadly, only touch the retail business of the country. The wholesale traffic, the large consignments, the constant interchange between great centres, the export, import, and transit trade—all this is done at what are called ‘ special ’ or ‘ exceptional ’ rates.

Called ‘ exceptional ’, they are rather the rule than the exception. What proportion of the total tonnage pays ‘ scale ’ or ‘ special ’ rates respectively, either on English railways as a whole or on the railways of any particular company, no one knows with accuracy, as no statistics have ever been published. But it is safe to assume that not more than a quarter of the total merchandise traffic of the country is carried at scale rates.

Exceptional rates are always below the scale rates. But they may be anything from 5 to 50 per cent., or

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require the Railway Commission to prohibit higher rates for the shorter distance. But it does not appear that any case has actually been decided under this section of the Act. The Railways Act 1921 gives the Railway Rates Tribunal power to prohibit competition over routes circuitous by more than a certain percentage. It remains to be seen what, if any, use the Tribunal will make of this power.

even more, below. Further, they may be made with reference to the normal scales—so much per cent. off—or they may be fixed regardless of any scale as a positive figure, so much per ton from *A* to *B*. In this latter case the rate is, of course, only available between the specific points named. Special rates made by percentage concessions are usually applicable all over the line, provided the conditions attached to them are complied with.

The simplest form of a rate of this kind is the series of 'owner's risk' rates. A reduction of 10 or 15 or 20 per cent. off the ordinary class rates, according to the character of the goods, is made on a very large number of articles—glass, marble, damageable iron castings, machinery, &c.—on condition that the consignor contracts to relieve the railway company of their common law liability for loss or damage. It will be observed that the percentage reduction is very much more than the cost of actual insurance could amount to. In fact, it is largely a method of differentiating between the regular trader, who is almost certain to avail himself of the option, as a 10 or 20 per cent. discount off his monthly account for carriage is a serious matter, and the casual customer, who pays whatever railway rate is charged without inquiry. These 'owner's risk rates' are, however, perhaps more properly described by their official title of 'reduced class rates' than as exceptional rates.

An example of a somewhat different kind is to be found in the exceptional rates for grain. Grain is classified in Class C, provided it is sent in consignments of at least two tons. But a two-ton consignment is given, even though it does not occupy, an entire truck for its conveyance. It is therefore much in the interest of the company to encourage the farmer to send his produce in larger lots. It is also much in the interest of the farmer to save on his carriage bill. Accordingly, rates lower than the normal Class C rates are put in force for 4-ton lots, still lower rates for lots of 6 tons. Whether these rates are entered ostensibly in the rate-books all over the system as percentage reductions for large quantities, or whether, as is more usual, they are entered as special rates *nominatim* from a particular local station to the neighbouring market or milling centres, they are equally in fact general concessions given, whenever they are likely to be made use of, in consideration of larger quantities being sent. The two governing principles, ‘ what the railway can bear ’ on the one hand, ‘ what the traffic will bear ’ on the other, combine to explain them.

Lastly, we come to special or exceptional rates strictly so called. Let us take as an illustration a specific trade. Tin-plates are manufactured in hundreds of thousands of tons in the valleys of Monmouthshire and South Wales. Thence they go in wholesale quantities to the manufacturers of hollow ware—pans, cans, kettles, and the like—or to the merchants in the great centres ; they go in still larger quantities to Liverpool and London for shipment all over the world. The distributing merchant in his turn sends out tin-plate to the ironmongers all over his district, a box or two at a time. We shall find that tin-plate gets three different sets of rates corresponding to these three different conditions. It is placed in the classification in Class I, and the local retail traffic will go at the Class I rate, averaging perhaps 2*d.* per ton per mile. From the mill to South Staffordshire the charge may be 12*s.* or 15*s.* a ton, equivalent to a rate of 1½*d.* or 1¼*d.* per mile in 2 or 4-ton lots. Lastly, to Liverpool the rate may come down to 9*s.* or 10*s.*, a good deal below 1*d.* per ton per mile. At any higher rate coasting vessels would carry the traffic round by sea from Newport or Swansea, and, as we have seen in an earlier chapter, to the railway manager 'any rate is better than no rate'.

Take another instance. The Birmingham Corporation constructed twenty years ago in a remote Welsh valley a series of huge reservoirs and built an aqueduct thence to Birmingham. Into a district whose requirements are normally on a very retail scale, cement had to be carried in tens of thousands of barrels and iron pipes in thousands of tons. Special rates were put in force for the exceptional traffic and withdrawn when the work was completed. Here is a case of a different kind. An iron-works draws its supply of limestone within a radius of thirty miles. Fifty miles off there is a quarry of good quality and easily worked. The owner goes to the railway company, points out that he can sell his limestone at the works for 7*s.* a ton; he can produce it, allowing for royalty, cost, and profit, for 4*s.*; he thinks he could do a trade of 30 000 tons in the year, if he can get a railway rate of 3*s.* a ton. And though the normal Class A rate would be more like 5*s.*, and though the railway manager will do his best to argue that the producing cost will be less than 4*s.*, and that the selling price is more than 7*s.*, if the quarry owner can make good his figures, his chance of getting the exceptional rate he asks for will be a very good one.[1] But the rate will very likely be coupled with a condition that not less than ten trucks shall be sent in a single consignment, or that the traffic shall amount to a minimum of 2 000 tons per month.

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[1] No allusion has been made in the text to the effect this

Exceptional rates are often made, not for an individual colliery, works, or station, but for a whole ‘group’. There is, for instance, a group-rate from the South-Yorkshire coalfield to London, whatever be the colliery of origin and whatever be the station of destination. The advantage in simplicity is obvious; the London coal-merchant can buy on equal terms from every pit within the group; the coal-owner can bring his coal to bank at whatever point is most convenient within the field. And where the grouped collieries do business towards all points of the compass no one is likely to offer objection. When, however, the output all goes away in one direction, the colliery owner nearest the consuming points is apt to think that the railway company is depriving him of what he calls ‘the natural advantage of his geographical situation’.

special rate may have on other comparable rates and on rival producers. It seems better not to complicate the general question of rate-making by introducing the very difficult subject of ‘undue preference’. It is a subject that can never be absent from a railway manager's mind every time he is asked for a new special rate. But this is not the place for its discussion.

CHAPTER XII

CLASSIFICATION AND RATES

THE INTERFERENCE OF PARLIAMENT

In the two previous chapters we have sketched the development of our English system of rates and classification. We have seen reason to think that the early Parliamentary schedules, for goods traffic at least, were obsolete even before they were enacted. Certainly they became obsolete at a very early date. They were forgotten or tacitly ignored, like many other Acts that only remain on the Statute Book because no one has attempted to put them in force. There might be and were serious complaints of relative inequality in rates, and Parliament established more than one tribunal to deal with the matters. But to the absolute *quantum* of the rate little attention was paid. And, indeed, manufacturers and merchants, who, with the aid of the rapidly extending railway system, were capturing the trade of the world, who remembered what rates had been in the pre-railway days, were not likely to complain very seriously. But the Acts remained in the Statute Book all the time, and when depression succeeded the great outburst of trade activity in the early ‘ seventies ’, traders began to claim their protection. It was freely asserted that the companies were making charges in excess of their legal powers.

The assertion was easy, the proof of it exceedingly difficult. For one thing, it was by no means clear what the charging powers of the companies were. Not only was a through route made up often of half a dozen different sections of line, each authorized under a different Act, with divergent classifications and varying scales of charge, but sometimes it was not clear under what Act the line had been actually constructed. There were even cases of lines where no maxima existed at all. Assuming that it had been ascertained what the maximum legal rate was, it was still a question what that rate was meant to cover. That it at least did not cover the services of collection and delivery outside the railway premises was admitted. But it was claimed on the part of the traders that it covered everything else ; on the part of the railways that it covered mere conveyance along the line, and that everything else, the use of the station, checking, weighing, invoicing, loading, marshalling, unloading, &c., was legally subject to a reasonable but undefined additional charge. If the traders' view was correct, millions of rates were undoubtedly illegal. If the railway contention was sound, a rate would need to be very extortionate before it could be challenged on the ground that it exceeded the legal maximum. On this question of the right to charge terminals a long battle was fought in the law courts. The decision mainly turned on the question what meaning a varying body of legislators, who may be assumed to have had no special familiarity with the subject on which they were legislating, intended, in and about the year 1840, to attach to the words 'the services of a carrier'. A wealth of antiquarian research, naturally undertaken with more advantages by the railway companies than by their opponents, was directed to the solution of this question.

In the end the victory was in the main with the companies, but before the final and most important decisions were given, the matter had been referred from the law courts to the judgement of Parliament.

The question of railway rates occupied the attention of Parliament almost continuously for thirteen years. In 1881 a Committee was appointed by the House of Commons. This Committee took evidence at great length; but, not having time to report, was re-appointed in 1882, when it took further evidence and reported. It recommended :—

(1) ‘ That one uniform classification be adopted over the whole railway system.

(2) ‘ “ Terminal ” charges to be recognized, but subject to publication by the Companies, and in case of challenge to sanction by Railway Commission.

(3) ‘ That on application by a railway undertaking for Parliamentary powers attention should be directed by some public authority to the proposed, and, in the case of an existing company, to the existing rates and fares, with a view to their consideration by the Committee.’

The Committee further expressed their ‘ opinion that it is essential to the protection of the public that a maximum rate should be fixed in all cases ’.

It naturally devolved upon the Board of Trade to bring in a Bill to give effect to the report. Two points were obvious, though the attention of the Committee does not appear to have been directed to them. A new classification could not possibly be applied to the old maximum rates of the various railways. Secondly, a piecemeal revision of existing rates, as and when each company applied to Parliament for new powers, was unworkable. A Private Bill Committee, before which the North-Western came with a proposal for some small new branch, could not possibly attempt to revise the existing rates over the whole North-Western system.

In the sessions subsequent to 1882 various attempts were made by successive Presidents of the Board of Trade to deal with the question. Finally, an Act, which became law under the title of the Railway and Canal Traffic Act, 1888, settled the method in which a revision of the statutory rates for goods—passenger fares and tolls for goods were left untouched—should be carried through.

The Act of 1888 laid down that each company, or in its default the Board of Trade in respect of each company, should prepare for submission to Parliament a revised classification and schedule of maximum rates, and that such classifications and schedules, when approved by Parliament, should take the place of those contained in the whole of the existing Acts. In pursuance of this legislation two special Commissioners appointed by the Board of Trade held an inquiry extending over the years 1889 and 1890; and the Board of Trade ultimately submitted to Parliament a series of thirty-five Provisional Orders. These Orders were subjected to a further exhaustive examination by a Joint Committee of the two Houses in the sessions of 1891 and 1892, and after considerable modification at the hands of the Committee, became law under the title of the A. B. Railway Co. (Rates and Charges) Order Confirmation Act, 1891 or 1892. The leading companies had each an Order to itself; the smaller companies were dealt with in groups.

Each Order comprises two main parts, the classification and the schedule of maximum rates. The classification is absolutely identical throughout the thirty-five Orders. In other words, there is now in force throughout the whole United Kingdom one uniform statutory classification. Provision is made for future inclusion of new articles, but alteration would require a new Act of Parliament. This statutory classification is, however, a maximum only. Any individual company is free to place any or every article enumerated therein in a lower class. In practice, however, this is not done. Changes of classification are only made by agreement between all the companies, and accordingly the ‘working’, or ‘Clearing-House classification’, which is maintained alongside of and subject to the statutory classification—often falling below it, but never rising above it—is also uniform throughout the country.

Of the statutory classification little need be said. It took for its basis—the only basis which indeed was possible—the classification whose methods and principles had been worked out, as described in a previous chapter, by the companies during fifty years of the higgling of the market. An alteration was made in the names of the ‘lettered’ classes. The companies’ M (A), M (B), and S became more simply the statutory A, B, C, and so the number of separate classes was increased from seven to eight. In certain instances particular trades were successful in persuading the Board of Trade or the Parliamentary Joint Committee that the articles in which they were interested had been in the past compelled by the companies to bear more than their due share of the general burden. And in such a case an article which had hitherto appeared in, say, Class IV of the Clearing-House classification was included in Class III of the statutory classification. But in the main the statutory classification reproduces the Clearing-House classification as it stood in 1890. And it may be added that this latter, as re-issued by the companies from time to time, shows only slight variations from the statutory classification. One divergence, however, between the two should be noted. The working classification often admits goods to a lower class on condition that certain methods of packing or consignment are adopted, such special treatment being justified partly on the ground of economy in carriage, partly as a concession to the wholesale trader. Here are some instances :—

Clearing-House Classification.		Statutory Classification.	
Leather hose, e.o.h.p.[1]	Class IV	Leather hose	Class IV
Leather hose in bales	Class III		
Mattresses, e.o.h.p.	Class IV	Mattresses	Class IV
Mattresses, packed	Class III		
Mattresses, wire netting rolled round the woodwork and covered with canvas	Class II		
Rennet, e.o.h.p.	Class III	Rennet	Class III
Rennet in casks	Class II		

In both classifications Classes A and B apply only to a minimum consignment of 4 tons ; Class C to a minimum of 2 tons. The other classes are without any condition as to weight of consignment ; but whereas, under the old rule, articles less than 500 lb. in weight, technically known as ‘ smalls ’, were subject to an extra charge, the ‘ smalls ’ surtax does not now apply above 3 cwt., except that quantities above 3 cwt. do not get the benefit of the tonnage scale unless that scale produces a rate at least as high as would be the rate for 3 cwt. at the 'smalls' scale.

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[1] e.o.h.p. means ‘ except otherwise herein provided ’.

That the new statutory classification was a great benefit to all parties can hardly be doubted. Simplicity and uniformity were substituted for a welter of confusion and contradiction. And this was not all. The old Acts had recognized the equity of causing pig-iron to bear a larger share of the common burden than ironstone; finished iron in its turn more than pig. Now the process was carried further, and 'all other articles, matters and things' were differentiated by careful application of the same principle.

But as to new schedules of maximum rates there is more room for doubt. Professor Hadley, afterwards President of the University of Yale, whose book appeared in America while the controversy in England was at its height—a writer whose competence could as little be impeached as his disinterestedness—had sounded a note of warning. 'Every careful student of the question, from Morrison, in 1836, down to the Committees of 1872 and 1882, has come to the conclusion that fixed maxima are of next to no use in preventing extortion.'[1] Parliament, however, had decided that revised schedules of maximum rates should be put into force, and the Board had only to give effect to what Parliament had decided. But on what basis ? On this point the Act was silent. The new schedules were to be, ‘in the opinion of the Board of Trade, just and reasonable’. Parliament had, however, given one indication, though only of a negative kind. The Committee of 1882 had spoken of ‘due regard to the interest of the existing companies’. And the Bill for the Act of 1888, as it left the House of Lords—into which it was first introduced—had required the Board so to fix the new maxima that they should ‘be upon the whole equivalent’ to the existing maximum rates. The House of Commons struck out the obligation to consider the existing rights of the company and left the Board free to fix such new maxima as they might, deciding on what grounds they pleased, think just and reasonable.

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[1] *Railroad Transportation*, p. 178. Morrison was James Morrison, sometime M.P. for Inverness, and a recognized authority on railway questions in the House of Commons in his day. His book, *Tracts on Railways* (London, 1848), will even now repay perusal. The Committee of 1872 was a Joint Committee of both Houses, and a very exceptionally strong one. Their report said: 'Legal maximum rates afford little real protection to the public.' I am not myself able to find in the Report of the Committee of 1882 any passage bearing out President Hadley's statement of their attitude on this question.

Seldom perhaps has a more striking example been shown of the capacity of the English constitution to work a peaceful revolution under the form of ordinary law. Railway shareholders had invested hundreds of millions sterling on the faith of being permitted to make certain specified charges. In future they were only to make such charges as a non-expert committee of Parliament might think fit to sanction after receiving from two non-expert officials of the Board of Trade a report as to what they thought reasonable. And yet the price of railway shares was hardly affected. If any one was really to be pitied, it was not so much the railway shareholders as the officials of the Board of Trade, who were required to evolve from their own inner consciousness a standard of justice and reason.

When a body of promoters or an existing company apply to Parliament for an Act for a new railway, it is clearly justifiable—it may or may not be politic—to fix the maximum rates as low as the promoters will consent to accept. But if it is proper to substitute for the various maximum scales of an existing undertaking a new maximum scale applicable to the whole system, the only equitable plan would seem to be to fix them so that they did not cut across the top of any existing and justifiable charge. And a charge within the old maxima was clearly entitled to be regarded as reasonable and justifiable till the contrary had been shown. But to investigate *seriatim* all the hundreds of thousands of cases in which rates were charged markedly above the average was an impossible task. It could not be and was not attempted.

The principles on which the revision was carried through are set out in the Report of the Commissioners appointed by the Board of Trade to hold the special inquiry. ‘The railway companies’, they say, ‘have built up a traffic remunerative to themselves at rates, generally speaking, much lower than those at present authorized by Parliament, and consequently we believe that it is equitable to make a reduction in their present powers and to fix rates, based to a great extent on existing rates, but with a reasonable margin of profit for possible changes of circumstances injuriously affecting the cost of or the returns from the carriage of merchandise by railway.’ The importance of this passage lies in the words ‘based to a great extent on existing rates’. How the Commissioners understood them is plain from the following passage:—

‘The railway companies have urged persistently and strongly that the future maxima ought to be so fixed as to result in no loss of revenue to the company. If by this is meant that the future maxima should be such as to cover all existing rates, we are unable to agree to the proposition. To what extent there is justification for the very wide differences which exist in actual rates we are not called upon to pronounce. But it is material to a just settlement of powers of charge that it suits the companies in a large number of instances to conduct traffic at rates much lower than those authorized in their present Acts or in the schedules attached hereto. If maxima were to be fixed at rates high enough to cover present non-competitive charges, the traders who rely solely on a particular railway would be without the Parliamentary protection which they claim, and, as we believe, reasonably claim.'

Two propositions in the last paragraph need to be examined in the light of the considerations as to the nature of the business of a railway set out in previous chapters of this book. 'It suits the companies in many cases', says the Report in effect, 'to charge rates much lower than the proposed new maxima, therefore such rates must be reasonably profitable.' 'It is reasonable for the State to reduce perforce certain existing rates charged where there is no competition.'

Two comments are to be made. A railway does business at a minimum of profit, where a larger profit is unattainable. It gets a high rate where it can, it takes a low rate where it must; and so on the whole a reasonable revenue is secured. Rates in some cases may, in order to retain the traffic, have to be reduced to a point where they do no more than cover working expenses; in other cases it is reasonable and possible to keep up rates to a point where they yield much more than the normal percentage of profit to meet the interest on the capital. But if one half of the rates are to be kept down by economic, and the other half by legislative compulsion, based on the mistaken belief that equality is equity, there is no point at which interest on capital can emerge. To call upon a railway company to give to an inland town rates on the same scale as those which it gives where forced to do so by sea competition, simply because it there gives them, is to call upon it, not to maintain equality, but to counteract an inequality for which, not the railway company but the Author of the Universe is responsible.

The other comment is this. Rates are, it is suggested, high, because non-competitive. It would be at least equally true to say that rates are non-competitive because they are high. In other words, no one cares to compete for the traffic of a district where rates are naturally high. For such a district is necessarily a backward one, or even a district with scant natural resources. But the rates are not too high ; as a rule they are not so high as they reasonably might be ; as they would be, if the company had not other and more profitable fields to work.[1] A poor district implies, as has been pointed out earlier, scant traffic ; scant traffic implies that the entire cost of the railway must be charged over few items ; in other words, that each item must bear a proportion of that cost many times more than it need bear on a great trunk line.

Fifty years ago Albert Fink, a man who combined, in perhaps unequalled degree, practical business capacity and grasp of abstract economic theory, dissected in minute detail the published accounts of the railway of which he was then President, the Louisville and Nashville. He analysed the cost of carrying a ton a mile on the main line and on each of the different branches. And, after giving numerous detailed illustrations of his method, he summed up as follows: 'A careful investigation shows that, under the ordinary conditions under which transportation service is generally performed, the cost per ton-mile in some instances may not exceed one-seventh of a cent, and in others will be as high as seventy-three cents per ton-mile on the same road.' In other words, cost of carriage to the carrier is shown by actual experience to vary all the way from 1 to 500. If then the sender of the goods consigned under the most expensive conditions is, in practice, charged a rate not more than ten times the lowest rate charged—and the actual difference in conveyance rates for long-distance coal and short-distance hats has never been more than this—surely he has no special right to call for 'Parliamentary protection'. What Parliamentary protection in fact comes to is that the State interferes to compel the coal to bear some portion of the cost of carrying the hats; or, which is only another form of the same thing, to compel a trader who is fortunate enough to live on the main line of the Great Western to pay part of the carriage account of another trader who lives in Cornwall or Cardigan.[1]

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[1] It is not too much to say that before the recent amalgamations there was hardly a single company in the United Kingdom, dependent solely for its livelihood on the local traffic of country districts, that was a reasonably profitable undertaking.

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[1] In France the companies produce for official publication statistics showing receipts and expenditure of each section of their systems separately. The main line of the Paris and Lyons Company, from Paris to Marseilles, is 540 miles, about one-eighth of the entire system. Of course its capital cost per mile is far above the average. Equally of course the rates on it per ton-mile, being mainly exceptional rates charged on wholesale traffic carried for long distances, were far below the average. Yet the main line paid before the war some 17 per cent. on its cost. Roughly, half the net earnings of the company were obtained on one-eighth of the mileage. But as

In what has been written above, the position assumed by the Board of Trade Commissioners has been criticized from the point of view of pure theory. As a matter of practical politics, their eminently British spirit of non-logical compromise was exceptionally successful. It is safe to say that public opinion and Parliament would not have supported a scheme of revision which reserved to the companies all the powers to which they could have made out what was, legally and economically speaking, a good claim. The companies' powers were cut down with an unsparing hand. But the net revenue of which the Commissioners' schedules deprived them was only a small percentage of that which was preserved to them intact. And on the whole the Commissioners' schedules—though considerable variations were certainly made, as much perhaps in favour of as against the companies—commended themselves to the Parliamentary Joint Committee. Whatever variations were made in their detail, the form of them, and the principle on which they were based, went substantially unchallenged.

The maximum rate schedules as finally passed dealt not only with merchandise proper, but with animals, carriages, perishable merchandise by passenger train, and small parcels by goods train. For all these latter categories the maximum rates were, like the Classification, made uniform over the whole country. We need, however, only concern ourselves with merchandise proper. It will be understood that the schedules apply only to traffic carried by goods train. A company,

many branch lines, in spite of low capital cost and the comparatively high rates per mile of the normal tariff, did not cover their expenses, the average net earnings on the total capital of the company were not 17 but about 4 per cent.

prior to the Railways Act, 1921, was under no obligation to carry goods other than perishables by passenger train. It might do so, if it thought fit ; but if it did it was entitled to fix its own terms.

The statutory goods schedules, 1891 and 1892, comprise an introduction and two parts. The introduction states that certain services, of which the most important are collection and delivery and services at private sidings, are outside the schedules. The charges for these are in the discretion of the company, but they must be reasonable, and in case of dispute are to be fixed by arbitration. Part I gives the maximum station and service terminals, these phrases being so defined as to include all possible charges before and after conveyance other than the specially exempted extras referred to above. Station and service terminals are, with only one local exception, uniform all over the country. They are enacted in the following form :—

MAXIMUM TERMINALS

In respect of merchandise comprised in the undermentioned Classes.	Station terminal at each end.	Service Terminals.			
		Loading.	Unloading.	Covering.	Uncovering.
	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.
A	3	–	–	–	–
B	6	–	–	–	–
C	1 0	3	3	1	1
I	1 6	5	5	1·50	1.50
II	1 6	8	8	2	2
III	1 6	1 0	1 0	2	2
IV	1 6	1 4	1 4	3	3
V	1 6	1 8	1 8	4	4

Here is a second table giving conveyance rates, but this time applicable only to a single company, the Great Eastern, whose Order happens to be the first of the series :—

MAXIMUM RATES FOR CONVEYANCE

In respect of merchandise comprised in the undermentioned Classes.	For the first 20 miles, or any part of such distance.	For the next 30 miles, or any part of such distance.	For the next 50 miles, or any part of such distance.	For the remainder of the distance.
	per ton per mile. *d.*	per ton per mile. *d.*	per ton per mile. *d.*	per ton per mile. *d*
A	1·15	·90	·45	·40
B	1·40	1·05	·80	·55
C	1·80	1·50	1·20	·70
I	2·20	1·85	1·40	1·0
II	2·65	2·30	1·80	1·50
III	3·10	2·65	2·0	1·80
IV	3·60	3·15	2·50	2·20
V	4·30	3·70	3·25	2·50

Perhaps this Great Eastern schedule is as nearly typical as any one that could be taken. Speaking broadly, the great lines from London to the north have maxima lower than these ; the lines south of the Thames, and the lines which do not touch London at all, have as a rule maxima somewhat higher. The difference—in percentage, not in absolute amount—is more marked in the lower classes. The Great Eastern schedule is, however, unusually simple. It applies all over the Great Eastern system. Most of the great companies have more than one schedule, sometimes even three or four, applying on different sections of their lines. Moreover in many cases what is known as ‘bonus mileage’, an addition for charging purposes to the actual physical distance, is sanctioned. The Severn Tunnel, for instance, has a statutory length of twelve miles; the Forth Bridge of twenty-three miles for certain traffic, fourteen miles for other traffic.

Further, it is by no means easy in many cases to know what schedule applies to any particular railway. The Great Western rates, for instance, to Abingdon, to Calne, to Bridport, to New Quay, and many other places shown in *Bradshaw* as situated on the Great Western Railway, are regulated not by the Great Western schedules alone, but partly by separate schedules dealing with the subsidiary companies whose lines in 1890 were only leased to the Great Western, though most of them were acquired by the company not long after. In some cases the difficulty of reducing the complications of the existing methods of charge within the framework of a schedule which should bind without crippling a railway company proved so great that the task had to be abandoned, and an Order accordingly provides that, with reference to some particular piece of line, ‘nothing in this Order shall affect the tolls, rates, dues, and charges prescribed by the A. B. Act’.[1]

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[1] Even maximum railway rates have their humorous side. One of the Orders, intituled with the name of the Midland and South Western Junction Railway, deals with, amongst others, two small Cornish railways, the Liskeard and Looe and the Liskeard and Caradon. The maximum rate schedule is in ordinary form enough, not very different from that of the Great Eastern as given above. But the two lines mentioned are given a special maximum of 3*d*. per mile for Class A traffic only. The explanation of the anomaly is as follows:—The Board of Trade fixed the maximum of this class for these two lines, as for all the other railways dealt with by the Order, at

Still, in comparison with the inextricable confusion of the old Acts, the new schedules were a model of simplicity and uniformity. At the same time he would be a bold man who, unless he possessed a considerable knowledge of railway law, railway history, and railway practice, coupled with intimate acquaintance with railway geography, would undertake to say positively the maximum rate legally chargeable, say, from Bridgewater to Grantham, or from Tunbridge to Rochdale. This is, however, not of very great practical importance, for simultaneously with the coming into force of the new schedules, events happened which almost immediately deprived them of the greater portion of whatever importance they might have possessed.

Before proceeding with the history, let us see how the passage of the Rates and Charges Orders affected the then existing rate situation. The rates entered in the station rate-books showed—as they still con-

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1·50*d.* for the first twenty miles. When the Order came before the Parliamentary Joint Committee, counsel appeared for the two Liskeard companies and said he was instructed to ask that the Class A rate might be raised to 3*d.* The railways were, he said, in the hands of a receiver, as their debenture interest was not being earned; there was practically no traffic except in granite for road-metal from the Caradon quarries, which was being charged 3*d.* per ton per mile; if the rate was reduced to 1½*d.*, the line would not pay its working expenses and the receiver would be forced to close it. The quarry masters appeared as witnesses in support and stated, naturally enough, that a going concern, even with a rate of 3*d.*, was of more use to them than a derelict railway with a nominal maximum of 1½*d.* *Solvuntur risu tabulae,* and the Committee made the alteration prayed for. So, on the Liskeard and Caradon, while the legal maximum charge for coffee and confectionery was 2.65*d.*, for road-metal it was 3*d.* The matter is of no practical importance, especially as even the 3*d.* rate did not enable the receiver to keep the line open. But the instance shows the difficulty of applying abstract official formulae to concrete commercial facts.

tinue to show—only one inclusive charge. The new maxima were split up into several heads—conveyance rate, station terminals (if a station is used by the traffic), service terminals for defined services (if rendered), all of specified amount; and lastly an unspecified sum for external services (collection and delivery, and the like), if actually performed. How did the sum of the new maxima compare with the inclusive rates in force before December, 1892? The question never was, and in the nature of things could not be, answered with any precision. For, as has been said, there existed no normal mileage scale with which comparison could be made. Individual companies made rough estimates that in certain instances, which were claimed to be typical, particular rates would perforce be reduced by 10, or 15, or 20 per cent., and calculated that the net loss of revenue to them would amount to so many thousand pounds per annum. It was suggested that the total compulsory reduction of charges might amount for all the companies to an annual sum of half a million sterling. This loss appeared in the main to be incurred on quite short-distance traffic, but it also occurred on traffic for considerable distances in the highest classes, and it occurred sporadically in all classes at all distances.

But the new statutory limitation of charging powers left the rates at which the great bulk of the traffic was carried absolutely unaffected. It might—in fact, in some very important cases, coal traffic to London for instance, it did—cut off all margin for future increase of rates, but it left the existing rates, speaking broadly, undisturbed. Economic forces had long ago brought down the long-distance rates, and had compelled the concession of special rates far below the point at which the new maxima were fixed. And within the limits of the maximum the companies remained as before, free to adjust and vary their rates as they pleased.[1] But the new maximum schedules and the conditions of application attached to them impinged upon the old rates at so many points that the companies came to the conclusion that the only way to ensure that all their rates should come within the limits of legality was to withdraw their existing rate-books altogether and recommence with an entirely fresh series.

The task, it need not be said, was tremendous. There are said to be some 7 000 stations in the United Kingdom. For each one of the 7 000 the legal maximum rate for each class had to be calculated to every other station to which through rates were in force. Then the rates to be actually charged in future had to be worked out, taking into account not only the relation of the different classes to each other, but also the relation between adjacent stations, the equitable claim of traders to the preservation of their acquired situation, and the competitive relation between the customers of the company on different sections of the line on which for historical reasons Parliament had retained two different scales of maximum rates. Further, the whole of the special rates had to be overhauled. In some cases the old special rate might actually be higher than the new class rate. In many other cases the ratio between class rate and special rate was upset. To leave a special rate of 20*s*. for 4-ton lots alongside of a class rate of 20*s.* 3*d.* for 3 cwt. and upwards was obviously absurd. Further, it was natural and proper to take advantage of the new departure to disencumber the rate-book of numbers of special rates, which lapse of time and change of circumstances had rendered obsolete.

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[1] Subject, of course, to the control of the Court of the Railway Commissioners on all questions where undue preference was involved.

The task would have been quite serious enough had each company only had to concern itself with its own railway. But in fact a large proportion of the rates in the rate-book at a big station are through rates to stations on other companies' lines, and such rates are usually available by several different routes. The settlement of a through rate between, say, Limerick and Birmingham affects—and accordingly is submitted for the approval of a Conference representing—not only every important railway company in the three kingdoms, but numerous steamship companies as well. Before the settlement of these rates could be usefully commenced, each company party to them must necessarily have ascertained precisely what its powers on its own line were and decided at least tentatively what its own local charges were to be. And it was not only adjustment of rates that had to be undertaken: important questions of principle had to be decided as well. For instance, there was a serious question whether the old system of charging a rate, including collection and delivery, should be continued, or whether, as in every other country, these extra-railway services should be made the subject of a separate charge. If the old system was to be continued, should the companies south of the Thames fall into line with the rest of the country?[1] Naturally, all this took time.

[1] Here is a problem in a concrete form. There existed for,

And the time allowed was quite inadequate. Nine out of the thirty-five Provisional Orders were passed in August, 1891; the remaining twenty-six not till a year later. They were all appointed to come into force on January 1, 1893, and the Board of Trade, which had power to postpone the date, refused the request of the companies that they should do so. The bulk of the work had, therefore, to be done in about five months. And when the first of January came, it had not been done. In most parts of the country the new rate-books contained the class rates only. The old special rates had been cancelled, and no new ones had been entered in their place. Traders, who had been accustomed to pay on certain traffic, say, 12*s.* per ton, received invoices claiming 16*s.*, or 18*s.*, or 20*s.* The company was undoubtedly within its legal rights; there was no obligation to grant a special rate; and the local representatives of the company had no instructions to go outside the letter of their rate-books.

All over the country an outcry arose. Traders by hundreds and thousands refused to pay their monthly accounts. Parliament was appealed to, and representatives of the railways in the House of Commons were unable to make any satisfactory defence. The President

say, 300 miles, 100 over line *A*, 200 over line *B*, a rate of 44*s.* That rate was divided in the usual manner: 4*s.* to each company for terminal and the balance in proportion to mileage, 12*s.* to *A*, 24*s.* to *B*. Under the new schedule *A*'s maximum powers for the 100 miles were only 15*s.*, while *B*'s for 200 miles were 30*s.* What was to be the new rate? The total of the old rate was covered by the sum of the two companies' powers. Was, then, this rate to be maintained? And if so, how was it to be divided? Was *A* to be given out of it more than its legal maximum? Or was *B* to profit by its neighbour's misfortune? It will hardly be said that the question is so simple as to be capable of an off-hand solution.

of the Board of Trade hastened to promise, in language not often heard from a Cabinet minister speaking officially on behalf of a great Department of State, that the railway companies should ‘ be brought to their senses ’. And yet the railway companies had only attempted to charge the rates which Parliament, after ten years of investigation into the question, had just enacted as the rates which the companies might ‘ lawfully charge and make ’. The irony of the situation was complete. Personal experience had done in a week what all the writings of ‘careful students of the question’ could not accomplish in half a century, and had convinced the practical man, whether legislator or trader, that ‘ fixed maxima are of next to no use in preventing extortion ’.

A Committee of the House of Commons was at once appointed to consider what should be done. Practical men, having proved the difficulty of controlling by legislation a situation essentially economic, were at once ready with proposals for further legislation. It was seriously proposed to give to every county court judge jurisdiction to fix, not merely maximum rates, but the actual rates that were to be charged. For a time it seemed possible that some panic legislation might be passed. The representatives of the railways were called before the Committee and asked to explain their action. The explanations did not entirely agree, as was natural, seeing that the railway counsels had notoriously been divided. In some cases want of time appeared to have caused the whole difficulty, and a manager was able to tell the Committee, either that the whole of the old special rates had been restored, or else that they were rapidly being restored, and that traders had been given to understand that their accounts dating back to the first of January would be made out at the old figures. In another case a manager appeared to have desired to test what the traffic would bear; having lost, say, £50 000 of net revenue by the operation of the new maximum schedules, he had sought to find occasion to recoup himself. His new scales of charge would, it was true, if maintained, bring in an additional revenue many times greater than that which he had lost; but he had no hope of maintaining them all. Further deductions would, he admitted, have to be made; but he hoped to end by retaining as much as would cover his losses. On the whole, the explanations failed to satisfy the Committee. In vain the railway companies undertook that no trader should be called on to pay more than a 5 per cent. advance of his old rate. The Committee, it is true, rejected or ignored the more radical proposals that had been submitted to them, but they reported that they failed to see that any increase at all was justified; that the action of the companies had unreasonably disturbed the trade of the country, and that it ought to be placed out of their power to act in a similar manner in the future.

In the following session a Bill to give effect to the recommendations of the Committee was introduced by the Board of Trade, and in due course became law as the Railway and Canal Traffic Act, 1894. By this Act the power of the railway companies to vary their rates as they pleased within the limits of their statutory maxima was for the first time made subject to public control.[1] The Act, which was made retrospective, provided that any trader might complain to the Court of the Railway Commission in reference to any increase of rate made on or at any time after January 1, 1893, and that in any such case the burden should lie upon the railway company of justifying the increase to the satisfaction of the Court. The theory underlying this new legislation was apparently that the power of increase conferred upon the companies by the difference between their old actual charges and the new maxima was given them, not to be used arbitrarily and at once, but to be kept in reserve to meet unforeseen difficulties, a serious and permanent rise in wages or the price of coal or something of that kind. The matter had been left to the discretion of the companies; they were proved, it was thought, to have abused that discretion; it must therefore be withdrawn from them and placed in the hands of an outside tribunal.

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[1] The statement in the text of course omits all reference to

As from the passing of the Act of 1894, the statutory maxima, elaborated with years of labour by the Executive and the Legislature, were of next to no use, not only for preventing extortion but for any other useful purpose whatsoever. The rates as existing on the 31st December 1892 became in effect the new maxima of the railways. The only possible function of the statutory maxima was to hamper the Railway Commission in increasing in certain cases the existing

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undue preference. Ever since 1854—in certain circumstances ever since 1845, and in many cases even earlier than that—a trader could complain, not that an increase of rate was in itself oppressive, but that it placed him at an undue disadvantage in comparison with a rival whose rate was left unaltered. But if the Court decided in favour of the contention of trader *A*, the railway company was fully entitled to redress the inequality, not by lowering *A*'s rate, but by making a sufficient increase in the rate charged to *B*.

rates as much as the Court, after hearing all the evidence, thought that they ought to be increased—truly a signal and speedy triumph for the professor over the practical man of business who had pinned his faith to the protection afforded by statutory maxima.

Though Parliament had granted full discretion to the Railway Commission, it gave no indication how the discretion was to be exercised. One thing was clear. The presumption was that any given rate was, on January 1, 1893, as high as it reasonably could be. It was for the company, in any case in which objection was taken, to prove that special circumstances justified an increase.

The numerous cases that have come before the Court under the Act of 1894 in the main divide themselves into two classes. In the first class a company has justified an increase as required to put an end to an anomaly. For instance, flour is carried at Class C rates (which do not include cartage), and on the North-Eastern Railway these rates were fixed on a uniform mileage basis. For very many years it had been the traditional custom in Hull for the railway to collect flour from the mills free, by carts or lighters. Millers elsewhere complained that this gave an undue preference to the Hull millers in competition with them. The Court held that it was reasonable to redress the inequality by putting an end to the anachronism and bringing down the services given in return for the rate in one town to the level of the rest, rather than by giving to all the other towns the same advantages as to Hull. In other words the Court put on one side the primary economic principle which, as we have seen, underlies all business transactions, of ‘ what the traffic can bear '. It confined its attention to the narrower question ' what can the railway bear ', and it narrowed its consideration still further by asking, not what the railway can bear and yet make a livelihood regarding the traffic as a whole, but how can the railway make an aliquot part of its livelihood out of the particular traffic before the Court.

In the second class of case, increases of rate have been defended on the ground of increased cost to the company. Here the decisions seem to establish three propositions as to the attitude of the Court. The increase of cost must not be temporary, but presumably permanent ; it must be fairly commensurate with the increase of rate ; and it must be incurred in respect of the traffic the rate on which it is proposed to increase. It may well be that an increase of cost shown to apply to the whole of the company's business would justify an increase in certain rates, even though the company refrained from seeking permission to increase other rates. But increased cost of dealing with goods traffic would not apparently justify an increase of coal rates ; increased cost of dealing with its traffic in Liverpool would not justify the North-Western in increasing its rates between London and Birmingham.

We are dealing in this book, not with law, but with economics. So we may here note the inconvenience of dealing with economic problems by legal machinery. A law court is not adapted for economic discussion. It can only try definite issues between certain parties according to the established rules of evidence and procedure. It can, except in so far as it is handicapped by lack of familiarity with the limiting commercial possibilities involved, try the issue ' How much has the cost of carrying coal from *A* to *B* increased in a given time ? ' And it can decide what percentage increase of the particular rate, other things being equal which they probably would not be, would cover that increased cost. But put the issue this way : ' The cost of carrying coal having been proved to have increased, and it being reasonable that the company should be recouped for its loss of revenue, what traffic shall be selected as best capable of bearing an increased rate, having regard to what is on the whole equitable to that traffic and most in the public interest ? ' An issue such as this no law court can try. And yet, if the account given in the earlier chapters of this book of the nature of railway business has any truth in it, this is the issue that really should be tried.

Let us test it by imagining a concrete case. Imagine that, owing to foreign competition, the coal export trade of Northumberland and Durham has shrunk to half its present volume. It needs no argument to show that the cost to the railway of carrying the remaining half will have largely increased. Half the capital invested in staiths and tips, in marshalling yards and storage sidings, in mineral engines and wagons, for dealing with this traffic, will be earning nothing. The general and maintenance expenses will run on with but a small reduction, and being charged on but half the traffic will be double as heavy per unit. The railway company can clearly make a case for increased rates. ' But ', says a law court, ' the increase must be on export coal. We have no evidence of increased cost on other traffic. The parties who would be affected by increase in other rates are not before the Commission, and judgement against them cannot be given in their absence.' We can imagine the answer that would be made by the company, not indeed in the law court, but in the forum of economic discussion: 'We cannot raise the rates on export coal. To do so would be to kill what is left of the traffic. We must be content to carry on this traffic at the present, or perhaps even at lower rates, down to the point where the gross receipts cease to cover our out-of-pocket expenses in doing the business. But you admit we are entitled to raise our rates to recoup ourselves if we can. Give us then leave to double our rates on fifth-class traffic. That can bear the rate. Though it be doubled, not a silk dress, nor an opera-glass, nor a musical-box the fewer will be sold because of it.'[1]

Fortunately, no such crisis in English industry arose before the cataclysm of 1914. But the fact remains that it would have been practically impossible for a law court to deal with it on any such lines as we have sketched. Even if the Court had so dealt with it, and had been convinced by the argument, it could not have given effect to its decision. For before the fifth-class rates could have been seriously raised, the maximum rates schedule of the company would have had to be repealed by Parliament. Fixed maxima, then, while ‘ of next to no use in preventing extortion ’, may have important influence in preventing economic adjustment.

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[1] It is worth while to recur once more to the taxation analogy. The expense of Government has increased, and new taxation is requisite. More money is required, say, for elementary education. Would any Chancellor of the Exchequer argue: 'The children to be educated are of the working-classes. I must therefore raise the money by taxes paid mainly by the working-classes, such as those on beer and tobacco'? Would he not rather say that the expenses of Government must be charged where they press least heavily, and increase the stamp duties, or the death duties, or the income-tax, if he thought that thereby he attained most nearly to the ideal of equality of sacrifice? And would he not be right?

The point should also be noted that a reduction of the coal tonnage necessarily increases the proportion of the general costs—three-fourths of the whole—which have to be borne by all the remaining traffic.

Though it cannot be dignified with the name of a crisis, a serious situation did arise shortly before the war. The great railway strike of 1911 was abruptly terminated by the Companies consenting, under insistent pressure from the Government in view of the threatening international situation, to substantial increases in railway wages. The Government undertook in return to introduce legislation to facilitate the raising of railway rates to meet the new expense. The result was the Act of 1913. Broadly, the Act provided that the Court might sanction such increases of rates as would suffice to cover the increased wages of the staff as a whole without inquiring too meticulously whether the increased burden on each category of traffic was strictly proportionate to the increased cost attaching to it. But it cannot be said that this Act introduced any new principle. It merely released the Court from the fetters of the precedent which its own too narrow interpretation of the Act of 1894 had imposed upon it.

One point of serious practical importance remains. The legislation of the years from 1891 to 1894 did much to prevent any natural and gradual lowering of rates. A railway company was still free to lower. It had ceased to be free to raise. Now a manager may desire to lower a rate, hoping thereby not only to benefit trade, but also, by increasing largely the volume of traffic, to increase his own net earnings. But it is only a hope. In the nature of the case certainty is not attainable in advance. A prudent manager, therefore, will not, unless his hope is closely allied to certainty, lower a rate when, according to the interpretation put upon the Act of 1894, he might have to face a law-suit before he could put it back to the old level. Still less will a conference of managers—and most important rates affect many companies—allow one of their number, more sanguine or, it may be, more far-sighted than the rest, to go ahead and make experiments. This, at least, is what we might expect *a priori*. Any trader, whose experience goes back to the years before Parliament began carefully to regulate railway rates in the interest of trade, can say from his own recollection whether the attitude of a railway manager to a suggestion of a reduced rate was more or less sympathetic in the twenty years before the war than it was in the earlier days.[1]

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[1] The law of undue preference in the hands of a Court, where legal rather than commercial considerations necessarily rule, has undoubtedly also had weight in putting a stop to the isolated and tentative reductions which, when cumulated, result in a general reduction of the average rate. Hadley (*Railroad Transportation*, p. 250) says of State railway officials: ‘They are not occupied with the question how to lower rates, but how to keep the right proportion between existing rates.’ The same thing is necessarily true of a railway law court.

CHAPTER XIII

THE RAILWAYS IN THE WAR

The Great War began on August 4th, 1914. On the same day, acting under authority of a Statute passed more than forty years before, when the experience of the Franco-Prussian War of 1870 was still fresh in the public mind, the Government took what the wording of the Act called ‘ possession ’ of the railways. The possession was however legal and not practical, and the possession was limited to one week, unless the Secretary of State should certify that the emergency still continued and so authorize the continuance of the possession for a further period of one week. These certificates continued to be given week after week till the Ministry of Transport Act of 1919, passed after the War, released the Secretary of State from this hebdomadal obligation. This point is worthy of serious notice as indicating how little the economic and financial side of the subject had been considered in advance.

On the practical operating side on the other hand the arrangements had been carefully thought out and formulated by a joint committee of military men and the managers of the principal railways. They worked in absolute smoothness from the outset and bore the sudden strain of mobilization and the dispatch of the Expeditionary Force with complete success ; and they continued to work satisfactorily during the whole period of the war. As has been said, possession by the Government was legal and not actual. The railways were worked on account of the Government, which was responsible for the expenses and entitled to the receipts. But the railway organization remained untouched. Not a single new official or servant was appointed. Not a single member of the railway staff passed into direct Government service. The ordinary staff of each company continued to carry out their ordinary duties subject to the authority of their General Manager. But the ultimate responsibility of the General Manager was no longer to his own Board of Directors. He acted upon orders from the Government. But even this only indirectly, for the Government control—the word ‘ control ’ really represents more accurately than the word ‘ possession ’ the actual state of affair—was exercised by an Executive Committee of some twelve persons, every one of whom was a railway man and General Manager of one of the great railways. It is true that the nominal chairman of this committee was the President of the Board of Trade. But, in fact, the Minister never acted in this capacity. His place was taken by one of the General Managers, who was elected as Vice-Chairman.

The Government guaranteed to each separate company that it should continue to receive during the period of possession a net revenue equivalent to that which it had earned in the year 1913. Consequently an individual company ceased to have any interest in securing traffic ; indeed the interest worked the other way, for if the shareholders got the money and the staff were saved the trouble of carrying the traffic, everybody was satisfied.

Financial difficulties having been got out of the way in this manner, the Executive Committee was free to utilize the resources of all the companies as a single whole. Traffic could be forwarded at a moment's notice over an emergency route made up of the lines of several companies. Traffic in permanent streams was diverted from its accustomed channels to routes that were shorter or physically better or less encumbered. The Executive Committee had naturally powers to issue orders to this effect. But orders were in most cases a mere formality, for the General Manager of the company had, as Member of the Executive Committee, himself taken part in settling the order addressed to himself in his individual capacity. In fact the essence of the English organization was that the normal administrative machine continued to function as usual. If the War Office or the Admiralty, or later on the Ministry of Munitions or other Departments, required troops or supplies to be moved, the Department stated its needs to the Executive Committee. The Executive Committee, having the necessary technical knowledge, and being in daily touch with the railway situation all over the country, worked out the scheme, and instructed each individual company to carry out its share of it. The critics who during the war cited the smooth working of the English railways as a proof of the advantages of nationalization, equally with the critics who after the Armistice cited the failure of the railways to restore overnight the smooth working of pre-war conditions as an argument for the necessity of reverting to private enterprise, were both equally wide of the mark. The railways were never nationalized in any ordinary acceptation of the term. State management cannot be credited with the admitted success of the operation of the British railways during the war, nor can it be saddled with any portion of the blame for the inevitable confusion which followed upon its sudden termination.

Comparison with the experience of the United States in this matter is not without interest. When the Government took possession of the American railways at the beginning of 1918, it assumed direct responsibility for their operation. A Cabinet Minister was appointed as Director General, and he proceeded forthwith to surround himself with a large staff of his own officials, of whom only a portion were railwaymen. And railwaymen who received Government appointments were required wholly to sever their connexion with their company. The Government went further. It formed new administrative and operating divisions and districts, ruthlessly cutting across the organization of great companies like the Pennsylvania and the New York Central. It established new standards for rolling stock construction, and introduced new operating regulations. It will hardly be claimed that the American method was more successful.

Another contrast between the two countries is too characteristic to be left unnoticed. At the outset of control in England, with the full approval of the Government, all the official statistics were scrapped. At the outset of control in America, the Government not only continued the production of all the voluminous statistics hitherto required, but added further elaborate statistics of operation, on the express ground that, if statistical records of performance were necessary under normal conditions, they were more than ever necessary at a time when the experience of the normal past had ceased to afford any trustworthy indication of what was probably happening in the abnormal present.

The war began when the holiday traffic was in full flood, and it brought with it instant pressure for military movement on a scale of which our railways had hitherto had no experience. To afford the necessary relief, all excursion and other reduced pleasure fares were forthwith withdrawn ; and they remained suspended during the whole period of the war. In effect this was of course equivalent to a considerable advance in passenger fares. But with this exception, no advance in railway rates was made till 1917, when an all-round 50 per cent. increase on passenger fares was imposed, with the object not of increasing revenue but of restricting travel, and of so freeing the railways from a burden which, with their greatly reduced staffs, seemed likely to overwhelm them.

The ups and downs of the financial position of the railways were very remarkable. It will be remembered that, during the whole war period, all naval and military traffic was carried free of charge, no accounts being even nominally rendered. And as the war went on, first the Ministry of Munitions and then all Government Departments came under the same system. But estimates, more or less rough, of what the railways would have received for Government traffic, had the pre-war rates been actually charged, were prepared from time to time. Their general effect was to show that on the whole the railway earnings covered not only the expenses but the net revenue guaranteed to the individual companies. But towards the end of the war period, owing to the enormous rise in costs of every kind, more especially in wages, the deficit was becoming serious. After the Armistice the ordinary trade of the country naturally needed time for recovery, while the Government traffic shrank rapidly to a fraction of its former dimensions. The staff employed was at the same time augmented, first by the return of the men who had been demobilized, and then by the introduction of the eight hours day. And the new scale of wages was in the proportion of 2½ or 3 to 1 of the old. The deficit grew to alarming proportions. If the railways were to continue to pay double or treble for everything they had to buy, and at the same time to sell their services at the old rate, the taxpayer would have to shoulder an intolerable burden. The situation had to be faced, and the measures perforce taken were all the more drastic, in that the difficulties had not been grappled with till too late. A new Ministry of Transport was established in the summer of 1919, and was entrusted by Parliament with wide powers to advance rates, after taking counsel with a special Railway Rates Advisory Committee, to whatever point might be necessary to restore financial equilibrium.

The Advisory Committee got to work at once. The situation was much too urgent to allow any detailed consideration of individual rates, and further the additional receipts required were so large that nothing but a general advance could suffice. Before the end of the year the Committee proposed, and the Ministry accepted, a scheme under which all-round advances were made, ranging according to class, from 30 per cent. on Class A up to 60 per cent. on Class V for ordinary consignments, but reaching 100 per cent. in the case of ‘ smalls ’. A new principle of charge was at the same time introduced. The increase of cost for wages was, as has been said, relatively much greater than for materials and the other elements of railway expenditure. Now it is evident that the wages cost in the case of short-distance traffic, even though it is not loaded or unloaded by the company, forms a much larger percentage of total cost than where the traffic is carried for longer distances. So the companies asked that, over and above the percentage addition to each rate, there should be imposed a 'flat rate' addition, ranging from 3*d*. to 1*s*. 6*d*. per ton, according to class. And the economic justification for the proposal was so manifest that it was forthwith accepted. It will be seen that on a ton of coal carried only 12 miles an additional 3*d*. per ton meant ¼*d*. per ton-mile; while on coal from Derbyshire or Nottinghamshire to London per ton-mile it only meant a 50th part of a penny.

Hardly had these increases come into force, when it became evident that they were wholly insufficient. The Committee in again revising the scales was forced to abandon the differential treatment of the lower class traffic, and to establish an all-round increase of no less than 100 per cent. on pre-war rates. This drastic increase was expected to restore equilibrium; but the disastrous coal strike, which began in April 1921 and continued for several months, so upset the reviving trade of the country that for the whole year, 1921, the receipts fell short by some £7 000 000 sterling of covering the actual working expenses. And as the net revenue guaranteed to the companies amounted to about another £50 000 000 the taxpayer had to find nearly £60 000 000 as a railway subsidy in that single year.

It will be observed that the whole elaborate structure of maximum rates had been frankly thrown overboard. The increase which Parliament had permitted the Minister to make at his own discretion, subject to taking the advice of a Committee which he was not bound to accept, had soared far above the tops of the highest statutory maxima. And so at this point statutory maxima disappear from English history; for no proposal has been made for their reintroduction, and the Act of 1921, as we shall see presently, has provided quite other methods for the protection of the public. Even the practical man is at length convinced that a sea wall which is only high enough to keep out the water at ordinary spring tides is not a very practical protection.

With the passing of the Railways Act, 1921, on August 19 a new railway era begins. It was marked at the outset by the transfer of the control of the railways from the Government back to the companies. Possession had been taken for seven days. It had lasted more than seven years.

This Act was described, and justly described, by one of the General Managers as ‘ the Charter of the Railway Companies ’. It is a voluminous document comprising no less than 86 sections and 9 schedules. We can only deal here briefly with its main features.

These main features are three :—the amalgamation provisions ; the constitution and powers of the Railway Rates Tribunal ; and the constitution and functions of the Central and National Wages Boards. At the time of the passing of the Act there were in Great Britain—the Act does not apply to Ireland—about 130 separate railway companies. The Act reserved the local London companies, the Metropolitan and the Metropolitan District, with their subsidiary companies, and the 'Tubes' for later separate treatment. It excluded also other purely local lines, the Mersey Overhead Railway and the Glasgow Subway, and a few more, which even in their own neighbourhood were of quite trifling importance. But it provided that all the other 119 companies should be amalgamated or absorbed—the difference is only of transitory importance—into four great groups, which were set out in full by name in a schedule of the Act. It further laid down the general financial condition under which the union was to be carried out, namely, that each company entering its prescribed group should be regarded as bringing with it the capacity to earn for the group in future the same net revenue as it had actually earned in the year 1913. It further provided that, till December 31, 1922, the companies combining into their respective new groups should be free to agree with each other, on the basis as laid down by the Act, the financial terms of their combination. The Act then established a special Amalgamation Tribunal, with instructions to approve the terms of voluntary combination, provided that they conformed to the conditions laid down, and with reserve powers to settle the terms of combination in any case where an agreed settlement had not been reached by the end of 1922. Surely no higher testimony to the traditional English virtues of moderation and readiness to compromise was ever given than by the fact that the compulsory powers were hardly put into force at all. When January 1, 1923, arrived there was practically nothing left for the Amalgamation

Tribunal to decide. The statistics for the year 1923, with quite negligible exceptions, deal only with the figures of the four great group companies.

To the work which has been imposed upon the new Railway Rates Tribunal a later separate chapter must be devoted. But something must be said here as to its constitution. The Rates Tribunal is the successor in title of the Railway Rates Advisory Committee established by the Act of 1919 under the chairmanship of the late Sir Francis Gore Browne, whose sudden and untimely death was a loss, to English traders and English railways alike, which can hardly yet be estimated. But there is this difference: the temporary Rates Advisory Committee consisted of a legal Chairman and four representatives of the railways, trade, agriculture, and labour respectively, with power, which was exercised, to appoint a sixth member under certain circumstances; while the new permanent Rates Tribunal has only three members, a legal Chairman and one representative each of the railways and of their customers. The idea underlying the establishment both of the Advisory Committee and of the Tribunal is that the settlement of railway rates and of the conditions of their application is essentially a business matter, to be dealt with by business men, presiding over the discussion of the commercial and economic issues involved and, after giving all interests affected an opportunity of being heard, deciding, with full knowledge of all the relevant factors, in the light of their own common sense and practical experience. A legal Chairman, trained to weigh evidence and to marshal facts, will hold the balance true, should the predisposition of the railway member or the commercial member of the Tribunal tend to cause him to overvalue the strength of the case made on the one side or the other. Parliament at long last has abandoned the belief that railway rates, infinitely complex and charged under conditions that are ever changing, can be regulated by the cast-iron fixity of a Statute. It has learned further that a law court, fettered by its own—possibly erroneous—precedents, and deciding on sworn and legally admissible evidence an issue, closed as between two parties, with no machinery for bringing before it either other private interests or the larger public interest which may be involved, is equally unfitted to decide such questions. It remains for the Rates Tribunal to show that it can continue to conduct the investigation of the matters submitted to its jurisdiction on these newer and broader lines. It is to be hoped that its members will always remember that the Railway Commission was established in 1872 with the same idea of preventing questions of railway rates from being treated as heretofore by a Law Court as a legal question ; but that as a matter of historical fact the Commission gradually became more and more a Law Court ; and that it was for this reason that the Act of 1921 transferred almost the whole of its railway jurisdiction to the new Tribunal.

Though discussion of the functions of the Rates Tribunal is reserved for later treatment, it is convenient to state here that their main function is, in broad outline, to fix such rates and charges as will enable the railway companies ‘ with efficient and economical working and management ’, to earn a revenue sufficient to remunerate the invested capital at the pre-war rate.

This much it is necessary to say before passing to the consideration of the third main subject of the Act of 1921, the establishment of the Central and National Wages Boards.

Boards substantially similar had been set up by the Minister of Transport by agreement with the railway unions at the end of 1919, when the Government was still in control. But their statutory recognition and constitution date only from 1921. To these Boards are to be submitted all questions affecting the pay, hours of duty, or other conditions of service of the whole of the subordinate staff. The Central Wages Board consists of sixteen members: eight representatives of the railway companies and eight representatives of the railway employees. Of the employee representatives four are nominated by the National Union of Railwaymen, two by the Associated Society of Locomotive Engineers and Firemen, and two by the Railway Clerks' Association. From the Central Wages Board there is an appeal in case of disagreement to the National Wages Board. This latter Board comprises six members representing the Companies, six representing the Trade Unions—two for the National Union, two for the Associated Society, and two for the Clerks' Association—and four representing the users of railways. Of these latter, two are, so to speak, capitalists, nominated respectively by the Federation of British Industries, and the Association of British Chambers of Commerce; and two, nominated respectively by the Parliamentary Committee of the Trade Union Congress and the Co-operative Union, represent the rank and file of the railway customers. To the sixteen members there is added a neutral Chairman appointed by the Minister of Labour. The decisions of these Boards have no compulsory force.

The position under the Act is therefore as follows :—The Rates Tribunal and the Wages Boards are wholly separate bodies, having no point of contact the one with the other. Parliament has laid upon the Rates Tribunal the obligation to fix such rates as will, after covering cost of operation, leave over a net income of about 50 million pounds per annum. Now something like 60 per cent. of the cost of operation consists of wages. Evidently the rates to be fixed by the Tribunal must largely depend upon the wages that are fixed by the Wages Boards. If the Wages Boards were substantially to reduce the scales of wages—which so far they have shown no great readiness to do—and if the staff affected were to accept their decision—which hitherto has not been the case in every instance—clearly it would be the duty of the Rates Tribunal to make a corresponding reduction in the charges which the public have to pay. If on the other hand the Wages Boards keep up or even increase the present scales of wages, the Tribunal will be compelled to keep up or, as the case may be, to increase the average rates. And an increase of rates might so burden the trade of the country and diminish the railway traffic as to render it impossible for the companies to pay the scale of wages to which they had assented, in reliance on their statutory rights to a corresponding increase in their powers of charge. Clearly these two intimately related matters are left by the Act in a state of unstable equilibrium. Probably the traditional dislike of an Englishman to push matters to extremes may be trusted to secure that the equilibrium is not entirely upset.

It is worth notice that the same difficulty has arisen in the United States, and has there given rise to much public discussion. The rates are fixed by the Interstate Commerce Commission, a statutory body; the wages by the Labour Board, an entirely separate body, also established by statute. It is strongly urged in the United States that this is permanently impossible; that the Interstate Commerce Commission may and in fact does reduce rates, believing that the railways can afford to risk the loss, and that the Labour Board, by increases in wages to meet an increased cost of living, immediately cuts away the basis on which the Interstate Commerce Commission had rested its calculations. So far no solution of the problem has been found in America. It is to be hoped that one will be found in time to be of use for our guidance here.

CHAPTER XIV

THE RAILWAY RATES TRIBUNAL

The elaboration of the new scheme of railway regulation, from the date of the establishment of the Ministry of Transport on August 15, 1919, till the date of the passing of the Railway Act on August 19, 1921, occupied almost exactly two years. Meanwhile the Railway Rates Advisory Committee, appointed under the Ministry of Transport Act, was already engaged in the work of preparing a new classification. The new Act therefore prolonged the existence of the Committee till it should have completed its task. This it has now done. The new classification, issued in 1923, though it has not yet come into force, is much more comprehensive than the old. The old classification dealt only with traffic sent by goods train, with the addition of perishable traffic sent by passenger train. The new classification embraces not only all freight traffic, whether sent by goods or passenger train, but also the actual passenger traffic itself.

Experience had revealed various defects in the old classification. Probably no one of these was of greater importance than the small number of classes into which the freight was grouped. Modern commerce requires fine adjustments to be made in costs ; a difference of a few shillings per ton in a railway rate will often make the difference between a manufacturer being in or out of a particular market. With only eight classes the differences between the rates for neighbouring classes has had to be considerable. Class B rates average about $\frac{1}{4}d.$ per ton-mile above Class A rates; this implies a difference between the two rates of over 20 per cent. even where the distance is short and a larger difference in the case of longer distances. Class II rates run 0·45*d.* per ton-mile above Class I, the percentage difference being much the same. These differences may not seem very large; but for a distance of even 100 miles, an addition of 2*s.* 1*d.* per ton to the cost of scrap-iron or brewers' grains means a material increase of the selling price.

It has frequently proved to be the case that, whilst the appropriate class rate was more than 'the traffic can bear', the rate for the next lower class was less than the 'railway can bear'. The outcome was a large development of 'reduced Class rates at owners' risk', and an incessant multiplication of exceptional rates, to fill the gaps. Whilst it was expedient that such rate adjustments should be made, they have not on the whole improved the relations of the railways and the public, as they encourage a spirit of haggling, and a suspicion of unreasonableness and unfairness. When the companies refused a modified rate, they were declared to be unreasonable; when they granted one, traders who could not share the benefit were aggrieved and did not suffer in silence.

The new classification should effect a considerable improvement in this respect. The number of classes in which commodities have been grouped has been increased from eight to twenty-one, so that when the rates applicable to each class are settled, the difference between each class and the next will be materially reduced. Goods which have hitherto been in the same class have now been in many cases divided amongst three classes. As for the most part the settlement of this classification was reached by mutual agreement between two committees representing the railways and their customers respectively, the new differences may be said to be accepted by both parties as more reasonable than the previous nominal equality.

The existing and the new classes are set out in parallel columns below for comparative purposes :

Existing classification.		New classification.	Applicable to consignments of	
Class A	min. 4 tons per consignment	Class 1	6 tons and upwards	In owners' wagons.
		2	,, ,,	
B	,,	3	,, ,,	
		4	,, ,,	
		5	,, ,,	
		6	,, ,,	
C	min. 2 tons per consignment	7	4 tons and upwards	In companies' wagons.
		8	,, ,,	
		9	,, ,,	
		10	,, ,,	
I	any quantity	11	2 ,, ,,	
		12	any quantity	
		13		
II		14		
		15		
		16		
III		17		
		18		
IV		19		
V		20		
		21		

The next important change disclosed in the table printed above is the increase in the minimum weight per consignment applicable to the lower classes. Thirty-five years ago, when the classification embodied in the Rates and Charges Orders of 1891 and 1892 was being settled, the standard goods wagon of the country was the 8-ton wagon, and there were large numbers of wagons of even smaller capacity. Twenty years ago they had largely been replaced by a 10-ton wagon. To-day the smallest wagons have almost disappeared; 12-ton wagons are being built in large numbers to replace the 10-ton wagons; whilst for mineral traffic the railways are already moving towards a 20-ton wagon. Owing to the change in the size of the wagon, the increase in the minimum from 4 tons to 6 tons per consignment in the new classes corresponding to the old A and B, and from 2 tons to 4 tons in three out of the four new classes corresponding to the old C, merely maintains the ratio of the minimum tonnage to the wagon unit.

It is regrettable and not a little surprising that in fixing the new classification the old system of 'minimum weight per consignment' has been retained, and that the more scientific and now more general system of 'minimum weight per wagon' (i. e. wagon-load minima) has not been adopted. From a railway standpoint the consignment is in itself no unit to work upon. The railway units are the wagon, the train, and multiples thereof. If a consignment of 8 tons of a commodity fills a wagon, it can be carried economically. But a consignment of 10 tons will require the use—probably in practice the exclusive use—of two wagons. The cost to the railway of carrying two separate consignments of 5 tons each would be practically the same. Why then should it give a lower rate for the 10-ton lot? Had the new classification, by adopting the system of minimum wagon loads, put constraint upon the trader to consign his traffic in a manner which enabled the railway to carry it cheaply, much money would have been saved; and of the resulting saving four-fifths would have come back to the trader in the form of reduced rates.

The experience in other countries is in entire support of this argument. In the United States, where the car-load rates were defined in numbers of tons in years gone by, it has been found a matter of great difficulty to get the tonnages adjusted to quantities corresponding to the much larger cars which are now in universal use. The railways in consequence have not been able to reap the full benefit from the larger cars, and so cannot pass on the benefit to the trader. On the Continent of Europe, the principle of charging less for full wagon loads, with further reductions as the size of the wagons increases, is being steadily worked out. The new scales of rates in France frequently have a clause to the effect that a 3 per cent. reduction will be given, if the traffic is sent in fully loaded 20-ton wagons, and a further reduction if it is sent in certain minimum train loads. In Germany the principle has been carried further, and the differences between the rates, for less-than-wagon-load consignments and for wagon-load consignments, are so great that traders are practically forced to consign their traffic in wagon-load quantities. Only some 5 per cent. of the traffic is in fact forwarded at the rates which are charged for quantities of less than half a wagon load. The result of such a tariff is that the railways attain good operating conditions, and so are able to quote rates which are often surprisingly low; and the trader reaps the benefit.

In this country the railways have made service the chief aim, and cheapness in transport has been a secondary consideration. The railway manager will say that he is providing what the trader asks for. It is a question whether the extent to which this policy has been followed is reasonable or wise. It may well be that railway managers would be doing a greater service to the trade of the country, if conditions which lead to reduced operating costs were more insisted upon in rate making, and so greater encouragement were given to the trader to consign his goods in ways which will reduce the cost of rendering the service. An opportunity to do this has now been lost. There is nothing novel in the idea of minimum weight per wagon even in this country. Entries occur both in the present and the new classifications which show a minimum weight per wagon as necessary to claim a particular class rate, ‘ hay ’ being a notable instance.

The same idea of promoting operating economy can also be considered as embodied in the more stringent regulations as to packing, which have been evolved in recent years, and which are re-enacted in the new classification. Bad, inadequate, or unsuitable packing results in increased railway costs, as it means poorer loading of the wagons, renders more care necessary in handling the traffic, and also increases the claims to be met for damage. Further, the trader suffers if the goods do not reach his customer in good condition. Even if the railway pays for the damage, the trader may lose in goodwill, and the customer through the loss of time while he is waiting for the replacement.

It may well be regarded as the duty of the railways to bring pressure to bear on the traders, when it is clear that the extra cost to the railway is incommensurate with the gain to the trader. The treatment of the question of the demurrage charges to the trader for the detention of wagons has nothing to do with a discussion of the classification, but it is connected closely with this question. After the expiration of a certain prescribed time, if the wagon is still not unloaded, a charge is made for each further day or part of a day that the wagon is detained under load. In pre-war days a uniform sum of 1*s*. 6*d*. per diem for each merchandise wagon was charged in this country.

On the Continent the view has been taken that railway wagons should not be used for warehousing goods. Not only is it an extravagant method of warehousing, but such use may, and in times of shortage almost invariably does, mean depriving other traders of wagons, and so upsetting their business. It is there considered to be the duty of the railway to prevent one trader thus inconveniencing and possibly injuring his neighbour in this way. So in the first place the free time is usually limited to twelve working hours or twenty-four consecutive hours, compared with the general rule in this country of two whole days excluding the day of arrival. Further, the charges for demurrage begin at a moderate figure, e. g. on German railways two gold marks per day, and are rapidly increased, probably doubled by the third or fourth day, until they become absolutely penal. Further, when a boom in traffic occurs and some shortage of wagons is inevitable, it is usual for the free-time period to be curtailed. As a consequence the traders are compelled to hasten with the unloading, in order that the demand for wagons may be met as fully as possible, and that every trader may obtain the transport necessary for the carrying on of his business with a minimum interruption or hindrance.

In the revision of the rules for demurrage, which took place after the war, the Continental practice was recognized as right in principle. The charge of 2*s*. 6*d*. a day for the first two days after the expiry of the free period is increased to 5*s*. for the third and each subsequent day. The length of the free period still persists and continues absolute. It is not merely in comparison with Continental railways that the time appears excessive. As far as can be ascertained, it is the most generous rule in the world. Even in America, with cars of 50 tons capacity for merchandise and of anything up to 120 tons for coal, only two days are allowed without charge for unloading. Here four days are allowed for unloading a 10-ton truck-load of coal.

If the benefits from exerting pressure on traders to consider railway operating conditions accrued wholly to the companies, opposition on the part of the traders would be inevitable, and the railways might well consider that it would be insuperable. But under the Railways Act, 1921, 80 per cent. of any saving must accrue to the traders. And this is their minimum gain, for the railways will often make concessions in anticipation of the resulting savings. Thus, for instance, the Great Western Railway in 1923 announced a 5 per cent. reduction in the rates for coal and coke sent in fully loaded 20-ton wagons. When on the Appointed Day the Act of 1921 comes into full effect, the position will be as follows. The intelligent coal owner will have already obtained the original reduction of 1*s*. in £1 off his railway account. Assume that other traders are wise enough to follow his example, and that the resulting economies in operating expenses reach 10 per cent., of this when next the Standard

Revenue is fixed, the railway will keep 2 per cent. as new net revenue, the other 8 per cent. must be given back to the public in reduction of rates. And 8 per cent. off a rate, originally 100, but already reduced to 95, means a further reduction to 87·4 per cent. Let us say that the old rate from pit to dock was 20*d.*, the new rate will be 17½*d.* Some 40 000 000 tons of coal are shipped each year from the South Wales docks. Surely 100 000 000 pence, equal to nearly £400 000, would be a substantial addition to the profits of the South Wales coal trade.

Turning back to the classification, we may pass over the classifications for timber, returned empties, rolling stock, dangerous goods, and live stock by merchandise train, and proceed to the classification for merchandise conveyed by passenger train. Perishables, which alone have been hitherto subject to statutory control, are now subdivided into six divisional sections compared with the old statutory three divisions, which again illustrates the need for greater subdivision and a more discriminating classification. Beyond this we get the whole of the remainder of the merchandise and live stock, when conveyed by passenger train, divided into thirteen groups with many subdivisions. For the most part the classification devised by the railways whilst they carried these traffics voluntarily has been followed, a further testimony to the way in which the railway companies have done their work in the past.

The alteration or amendment of this classification from time to time is only one of the functions of the Railway Rates Tribunal. Its chief function is to make and control the rates and charges for services and accommodation made by the railway companies. The position stands at the moment that the railway companies have submitted schedules of the standard charges which they desire to adopt, and the Tribunal is engaged on the task of examining them, and will ultimately decide what the schedules are to be. Once these standard charges are fixed, the railway companies will not be able to vary them upwards or downwards 'except by way of an exceptional rate or fare'. So far as the standard rates are concerned, once these schedules come into force, they will be based on scales which will make the actual charges easy to check. This will give these rates all over the country a uniformity which they have never possessed before. This uniformity will also extend to through rates, as the Act provides that the entire distance of the through route shall be treated as though it were continuous mileage on one railway.

The importance of this change is, however, greatly reduced by the provisions of the Act dealing with exceptional rates. So long as such rates are not less than 5 per cent. nor more than 40 per cent. below the standard rate, they can in practice be continued or newly introduced by agreement between the railway company and the trader almost without reference to the Tribunal. For rates below the 40 per cent. limit, however, the Tribunal's approval is essential. Further, a trader can, if he chooses to make an application to the Tribunal, bring any exceptional rate within its control. The effect of this provision may perhaps in time be to bring the innumerable exceptional rates now in force into some roughly logical relation to the standard charges.

In any case the Tribunal has at all times a general over-riding control. Throughout, it has to see that rates and fares as a whole are so adjusted that the railways can with economic and efficient management and working earn the standard revenue, i. e. a sum equal to the net revenue earned in 1913 with the addition of an allowance for interest on additional capital expenditures, and of a share in economies effected either in anticipation of the Appointed Day or at any subsequent time. Should a railway company appear to be making exceptional rates in such a way as to endanger its capacity to earn the standard revenue, the Tribunal can interfere, and order the exceptional rates to be cancelled or amended.

It is, however, the subsequent adjustments of rates, fares, and charges which are of the greatest interest. It is easy to conceive that the charges may be fixed in the first place on sound economic principles. As long as traffic increases or working expenses decline, and there is consequently an excess above the standard revenue each year, it is not difficult to imagine the Tribunal succeeding in distributing 80 per cent. of this excess amongst the traffics on sound economic principles. If, however, there comes a time of trade depression, and there is a shortage in the revenue, it will be no simple task for the Tribunal to decide on what shoulders the extra burden shall fall. In fact, it is practically certain that it will be impossible at all times to exact the full standard revenue from the traffic, unless rates are maintained above the lowest limits in prosperous times. It is, however, in the interest of the traders of a country that reasonable stability in railway charges should be maintained, and that rates should not move up and down with every down and up of trade. The strong men at the head of the great traders' organizations may no doubt be trusted to be wise enough to appreciate this.

Before dealing with the statutory requirement of economy and efficiency in the management and working, the great change in the position of owner's risk rates must just be noticed. As has been pointed out earlier, owner's risk rates have been in the past largely modified rates fixed when the class rate was more than the trader could bear, and they have mainly benefitted the regular trader. There is usually no connexion between the quantum of reduction in the rate and the value of the risk from which the railway is relieved. In the new Act, however, it is provided that the difference between an ordinary rate and an owner's risk rate shall be fairly equivalent to the difference in the risk of the company under the two sets of conditions. Moreover, whenever the difference in the company's liability under the two sets of conditions is not insignificant, the company can be called upon to quote both a company's risk rate and an owner's risk rate. The old clumsy device of using owner's risk as a cloak to cover really substantial modifications in rates will be swept away on the Appointed Day, and there will be no reason to mourn.

Attention has already been called to the fact that a company is only entitled to its standard revenue, provided that 'the working and management are efficient and economical'. It will be within the power of the Tribunal to make these few words a potent engine for the introduction of reforms that are long overdue on English railways. It is much in the interest, not only of the trade of the country, but of the railway companies themselves, that the Tribunal should attach serious importance to the obligation which Parliament has laid upon it to consider this question. That great economies are possible can hardly be disputed. It is matter of semi-public knowledge that the Board of Trade was advised, before the establishment of the Ministry of Transport, by competent experts that economies estimated as ultimately amounting to something like £20 000 000 per annum might be obtained as the result of the amalgamation of all the railways into a single undertaking. Sir Eric Geddes subsequently made in Parliament a statement that in his considered judgement a somewhat similar sum should be obtained under the grouping scheme of the Act of 1921.

Economies are of two kinds: internal economies, which can be carried out independently by the companies of their own motion, and the much greater economies which the companies can only carry out if the willing co-operation of their customers is secured. We may deal first with internal economies, naturally not exhaustively but by way of illustration. One of the group companies, formed by the amalgamation of seven principal companies and the absorption of a score more, has recently announced that it proposes in future to concentrate the construction of locomotives in only three shops. That great saving, not only in overhead charges but in actual manufacturing cost, must result is incontestable. A pertinent question to the other group companies would be, what have they done, or what are they doing in this direction? Similar questions might be asked as to the introduction of automatic signalling, in replacement of manual working with three shifts of men, at intermediate block stations on open lines; as to facing points into relief sidings in order to reduce to a minimum the time necessary to get a freight train out of the way of a following express, so to utilize to the best advantage the vast capital locked up in the running road. Then there is the vitally important and closely connected question of automatic braking of freight trains. That a heavy freight train, as 'heavy' is understood in other countries, cannot approach a signal even on the level, when the rails are slippery, at a reasonable speed, if only 10 or 15 per cent. of the total weight of the train is braked, need not be argued. Of the desirability of continuous brakes and of the great operating economies which would result, there is no question. And the opinions of two distinguished railway engineers are on record as to the practicability. In North America, not only in the United States but the Dominion of Canada, continuous brakes have long been a matter of course. India is moving fast in the same direction. In Germany since 1917 continuous brakes have been fitted on two-thirds of the whole freight rolling-stock. What are our railways doing about it?

Many points more of a similar nature might be suggested. But this is not a treatise on railway operation. And the possible internal economies are small by the side of the economies which for their successful working need the willing co-operation of the manufacturers and traders of the country. Month after month the returns published by the Ministry of Transport show with wearisome reiteration that the average load of merchandise in a so-called 'loaded'

10-ton truck is under 3 tons; that the average load of a freight train, including not only goods trains but coal trains, is some 130 tons. In other words, the gross weight of the average freight train is somewhere about 300 tons, a load lighter than that of numbers of express trains, booked at an inclusive speed of 50 miles an hour and upwards, which daily leave the great London termini. Under English conditions, we are told with some truth that the truck and train load cannot be greatly increased. But is it not possible to modify the conditions? A generation back the average net load of an American freight train was under 200 tons. To-day it is over 700 tons. Similar figures might be given for the load of the average American freight car. Now if we in England could progressively increase our truck load and train load, as the American railways have increased their loads, the resulting economies would amount to millions. Not only would operating expenses be decreased, but maintenance charges would at once go down, and the replacement of worn-out rolling stock would be largely unnecessary. Hundreds and thousands of miles of sidings would become superfluous, and the land could be devoted to more profitable uses.

Before the war millions of pounds were spent annually in quadrupling double lines that had become overcrowded. There is already talk of the necessity for similar widenings in the immediate future. Now congestion on a line is due not to weight of tonnage but to number of trains. A light engine occupies a whole block section. The heaviest freight train occupies no more space. If on a congested line there were substituted for 100 trains of an average gross weight of

300 tons, 66 trains averaging 450 tons, congestion would disappear and the costly process of quadruplication could be postponed to the indefinite future. Even if it be arguable that the retention of 10-ton wagons for merchandise traffic is justified, no competent outside observer doubts that the retention of 10-ton wagons for export or works coal is an extravagant anachronism.

There is then no question that great economies are possible. But it has to be admitted that they are only possible in full measure, if the merchants and manufacturers are ready to co-operate. Our English traffic has been developed on the basis of small consignments and rapid dispatch ; and this necessarily implies bad loading both of truck and train. Can the trader be induced to change his life-long habits ? It is much in his interest to do so, for the Act requires—if the fact be reiterated often enough it may possibly affect the mentality of the average trader—that four-fifths of the resulting saving in money shall be given back to the customers of the railways in the form of reduced rates.

It is possible to hold different opinions as to the attitude which it is proper that the companies should adopt to this question. There are those who say : ‘ Undoubtedly great economies would be possible with radically changed methods of dealing with the traffic, but the traders should know best the needs of their own business. The railways are the servants of the public, and it is their duty to give to the public what the public asks for. If the traders prefer an expensive service at high rates to an economical service at lower rates, they are entitled to have it.’ Others again say : ‘ We are moving and shall continue to move as fast as we can in the direction of economy; but our customers are very conservative; we cannot drive them, and it will be long before they come to appreciate what they might gain by a change in methods.'

But is there not a third possible attitude? May not the railways legitimately undertake to educate their public, not as heretofore by occasional lectures by overworked officials untrained in public speaking, or by the spasmodic issue of a few thousand pamphlets, but by a campaign, carried on year in year out, by men who are expert in publicity methods, in the newspapers, by notices on the trains and at the stations, by homely talks, as in America, on the back of the menus in the restaurant cars, or enclosed with the invoices, and by a score of other methods which would suggest themselves to an expert? It is matter of experience that vendors skilled in advertising can by persistence induce the public to absorb patent medicines, not necessarily for their benefit, in ever increasing quantities. In this case the railways might go forward in full consciousness that the more of their teaching the public absorbed the more would the economic health of the public be improved.

At present the railway companies spend money on a considerable scale in proclaiming the merits of the various pleasure resorts which they respectively serve. In the main this expenditure only diverts traffic from one route to another. It does not greatly increase the amount of new traffic, and therefore does not cause a great addition to the net revenue of the railways as a whole. On the other hand, a saving in operating costs secured by the better education of the public is pure gain; nothing of what Company A gains is abstracted from the revenue of Company B. It can hardly be expected that the Tribunal will regard as inefficient a management which does its best to deal economically with its traffic in the conditions imposed by public demand. But one of the most striking improvements in the procedure of the Tribunal as compared with that of the old Commission is that, instead of deciding a dispute between two parties remaining at arm's length, it habitually brings the two parties together, with the object, and with the happy effect in most cases, of minimizing the points ultimately left for its own settlement.

It is much to be hoped that the Tribunal will in this matter of reducing operating costs follow the admirable precedent which it has itself set. Under existing conditions and with existing methods it is evident that the present rates cannot be greatly reduced. Reckoned per ton mile our existing rates are very high. Broadly it may be said that the ton-mile rate in England is to the American rate in the ratio of 5 to 2; to the French or German rate in the ratio of 3 to 2. In other words the industry and trade of this country lose a great part of the advantage which they ought to gain from the geographical fact that nature has concentrated them in a small densely populated area close to the open sea. All the signs indicate that an era of intensified international competition is at hand, and English trade may be hard put to it even to hold its own. If the new Tribunal can, by exercising not only its actual powers, but still more its great influence as a mediating body, help to induce the sweeping economies in operation which are certainly possible, it will deserve well of the State, and the Act of 1921 may come hereafter to be known as the Charter not only of the railway companies but of the traders.

CHAPTER XV

PASSENGER TRAFFIC

In the last chapter attention was called to the fact that by the Railways Act, 1921, all merchandise traffic by passenger train, and not merely perishable traffic as heretofore, is subjected to the control of the new Rates Tribunal. From the point of theory this is of no importance, for the principles applying to the carriage of a belated consignment of goods to catch an out-going steamer are precisely the same as those applying to the normal traffic in fish or vegetables.

But the Rates Tribunal will in future control not merely the charges for freight traffic by passenger train but the fares of the passengers themselves. This is a radical departure from anything that has hitherto existed in this country. The old passenger maxima had even less influence on passenger fares than the maximum charging powers for goods in the old Acts had on the development of goods rates. There was, indeed, one statutory enactment that has profoundly influenced passenger fares in this country. But it was not an Act which professed to fix maximum fares. The Cheap Trains Act of 1844—to cite it by its common name, though in fact it dealt with many other subjects—required every company to run one train a day for the whole length of its line, calling at all stations, at a speed of not less than 12 miles an hour, and at fares of not more than 1*d*. per mile. The fares in third-class carriages on these trains, known to an earlier generation as ‘ parliamentary trains ’, were exempt from the tax of 5 per cent. charged on all other fares. But for many years after 1844 by all other trains the third-class fares were at the rate of 1¼*d.* or 1½*d.* per mile. Gradually, the fares for third-class passengers on all trains by which they were carried were reduced to the parliamentary level; and the penny-a-mile passengers were admitted more and more to the faster trains. Finally, in 1872 the Midland Railway took the plunge and announced that in future third-class passengers would be carried on every train. The companies on either side of the Midland were compelled to follow suit immediately, and within a few years the other companies fell into line.

Then there arose a new point. Express trains do not call at all stations; and accordingly the fares charged by them did not fall within the four corners of the exemption laid down by the Act of 1844. The Inland Revenue successfully claimed the payment of duty. But the absurdity of penalizing the companies for giving to the public far more than the law required was obvious. The matter was set at rest by the Cheap Trains Act, 1883, which enacted that fares not exceeding 1*d.* per mile should be exempt from duty, so long as the company provided such a service of workmen's trains as the Board of Trade might consider reasonable.

Modern railway Acts have fixed statutory maxima of 3*d.*, 2*d.*, and 1*d.* per mile for three classes respectively. But first-class fares of 3*d.* had long been obsolete for practical purposes; the fares in fact ranged between 2½*d.* and 1½*d.* The second class itself is obsolete. The third-class 1*d.* only registered what the companies had conceded of their own accord. We may therefore say that, with the important exception of the third-class penny, which Parliament only fixed indirectly and quite inadvertently, even our ordinary passenger fares are the result of a long process of trial and error. As for the whole series of reduced fares, return fares, season tickets, market, pleasure party, excursion, tourist, week-end tickets, and so forth, the railway companies have never been subjected to any external control.

And the passenger superintendent in fixing fares has not been subjected to the restraint which binds his colleague, the goods manager, in fixing freight rates. For the law of undue preference, whose effect may be said broadly to be to require a railway company to hold the balance even between competing interests, has never been applied to passenger traffic. A limestone quarry, twenty miles to the north of an ironworks, clearly competes with a second quarry thirty miles to the south. But how does the interest of a season-ticket holder at East Grinstead compete with that of another at Brighton ? It may be said that the interests of owners of house property in the two places are in competition. But the house owner does not pay the fare, and he cannot sue. In the old days, when competition between the two routes between Glasgow and Edinburgh ran riot, and first-class passengers were charged 1*s*. for the return journey between the two cities while the fares at the intermediate stations remained at their normal level, the Scotch Courts held that the law afforded no redress.

We may take it then that passenger fares, regarded as a whole, were before the war based on commercial principles and designed to obtain for the railways the maximum net profit. In so large a field there were naturally exceptions. Cheap tickets for shipwrecked sailors, returning to their home port, were clearly not given for economical reasons. Competition between companies played a considerable part. The excursion and tourist fares from London to North Wales must influence those which can be charged to Scarborough or Cornwall. The route from Paddington to Dawlish or Teignmouth is in real competition with that from Waterloo to Lyme Regis or Sidmouth. Season-ticket rates vary considerably for equal distances from the London termini. The explanation is in the main that the most eligible sites were occupied first. Later on, companies possessing less attractive territory or affording less convenient access to the centre charged lower rates in order to obtain a share of this class of traffic. Naturally the companies made mistakes ; but after the public had acquired a prescriptive right, they did not venture to correct them. They calculated that, even if they made no profit out of the season ticket of the breadwinner, the rest of the family would pay full fares, and that they would get the carriage of the food and other supplies that the family required. But nowadays the ubiquitous motor van delivers the supplies; and especially from the nearer suburbs, the tramcar and the omnibus bring in the wives and daughters.

Undoubtedly the extreme range of fares is difficult to justify. From Brighton to London the first-class season-ticket holder, supposing that he only travelled five days a week for forty weeks in the year, paid before the war 1*s.* 6*d.* for each journey. An ordinary third-class passenger, who was excluded from all the best trains, paid 4*s.* 2*d.* Perhaps the commonest mistake was to ignore the extent to which ultra cheap fares abstracted from the ordinary trains the passengers who otherwise would have paid the full fare. Suppose, for example, that to a point A, 120 miles from London, the ordinary third-class return fare was £1, and that weekly excursions were run at 5s.; suppose that one excursion passenger out of every five would have paid the £1 had there been no excursion. Then, in other words, the company got 25*s.* for carrying five passengers, whereas it might have obtained £1 for carrying one. It can hardly be that the additional 5*s.* of gross revenue left much net profit to the company.

A conspicuous instance of this miscalculation was afforded by the long-distance half-day excursions at express speed in ordinary main-line coaches at very low fares. The trains were well filled, and no doubt showed a satisfactory earning per train mile. But it is reported that passengers, having to go in the ordinary way of business from Weston-super-Mare or Birmingham to London, postponed their journey till after midday, and when they reached the terminus threw away the return half of their tickets, paying the full fare on their return, and still making a satisfactory saving in expense. This particular form of concession has not been revived since the war.

The public and even the railwaymen themselves do not sufficiently appreciate the wide gap that exists in this country between the normal rate of fare and the average sum actually paid per passenger-mile travelled. Even in France and Germany, where reduced fares were neither so frequent nor on so generous a scale as with us, the average fare paid used to be about two-thirds of the normal third-class fare. The present writer hazarded the opinion a good many years ago, on the basis of such scanty data as then existed, that in England the average fare paid *for all classes* per passenger-mile was nearer 0·5*d.* than 0·6*d.*, as compared to the ordinary third-class fare of 1*d.* per mile. This guess seems to be borne out by the fuller, though still too scanty, statistics now furnished by the Ministry of Transport. The railway returns for 1923 show that, whereas the nominal ordinary fare is 2½*d.* per mile first-class and 1½*d.* third-class, in fact the average sum received per passenger-mile *for all classes* at full fares is only about 1·4*d.* Moreover, so large a proportion of the first-class travel is not on ordinary tickets, but on season or traders' tickets, that the average receipt per first-class passenger-mile is only 1*d.* Similarly in the third class, workmen's and season tickets bring down the average from 1½*d.* to 0·93*d.* Taking the total of all classes and all descriptions of ticket, we find that the average fare paid per mile travelled is at present 0·935*d.* In other words the actual fare paid per passenger-mile is only 62 per cent. of the ordinary third-class fare.[1] If we assumed that the same ratio existed before the war between the standard third-class penny and the average fare paid per mile for all travel, the latter figure would have been 0·62*d.* But the average fare paid is undoubtedly nearer the ordinary third-class fare now than it was before the war. For a good many of the cheapest fares have been suppressed, and workmen's and excursion fares have been steeply raised. So it is safe to assume that the average fare received by the railways for carrying a passenger a mile was not in 1914 more than 0·55*d.*

It is worthy of note that in the United States, where journeys are long, where season-ticket traffic is very little developed and excursion traffic hardly at all, the normal and the average fare hardly differ from one another. The normal fare in the East, where the great bulk of the passengers are carried, is 3 cents, though it is considerably higher in the South and West, and the average fare is just about 3 cents. Sharply though the United States differs from Great Britain in this respect, it closely corresponds in two other respects, namely in the fact that in both countries there are only two classes—called respectively in America ‘ first-class ’, which corresponds to our third-class, and ‘ Pullman ’—and that the difference of fare between the two is much less than in other countries. Our first-class fare is now fixed at 66 per cent. above the third. In America the difference is considerably less. In France the first-class fare is two and a half times the third, but the first and second-class carriages are kept reasonably full by the policy of excluding third-class passengers from all the fast trains. In Germany there are four classes ; but first-class carriages are not run on local trains and fourth-class are not run on express trains. Before the war the fares were respectively 7, 4·5, 3, and 2 pfennigs per kilometre for the four classes, a ratio of 3½ to 1 between the lowest and the highest. Naturally the first class was little used, only, according to a common German saying, by ‘ princes, Englishmen, and fools ’. In 1923, a transport tax varying from 16 per cent. to 10 per cent. according to class having been meanwhile imposed, the fares were raised to 19·6, 9·9, 3·3, and 2·2 pfennigs respectively, a ratio of 8 to 1. Naturally the first-class carriages were even emptier than before.

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[1] See note on p. 216.

A recent count showed that out of 10 000 passengers 6 paid first-class fares. But as from March, 1924, this absurd disproportion has been lessened by sharply reducing the higher class fares and sharply advancing the two lower classes. The fares now are 9, 6, 4·5, and 3 pfennigs respectively, a ratio, that is, of 3 to 1. It can hardly be doubted that even this is too steep a difference.

For, as has been said already, freight traffic is classified by the company. Cigars and silks, if they are to travel at all, must pay the highest rate. But passengers classify themselves. A small percentage will choose the best accommodation whatever the price. The great bulk of passengers travel as cheaply as they can, adopting the principle of the legendary English nobleman who, when asked why he travelled third class, replied, 'Because there is no fourth'. But between these two extremes there is a substantial number of passengers who waver between one class and another, balancing the marginal satisfaction of the greater comfort against the difference in fare. And it is worth while for the railway to lay itself out to attract them. After a long process of trial and error, the English companies have come to the conclusion that fares in the ratio of 3 to 5 represent the proportion which on the whole pays best. For, though one often sees letters in newspapers asking why the companies run empty first-class compartments, the railway men know their business. They know that the extra cost of running a first-class compartment is very trifling; that if on the average each compartment only earns an additional 1*d.* per mile, the additional expense of running it is more than covered.

Rates per mile for goods decrease in almost every country as the distance increases. In most countries the normal tariffs, corresponding to the maximum rates in our Acts of 1891 and 1892, are on this basis; and the principle is carried further in the fixing of exceptional rates. Before the war Germany had sliding-scale tariffs only for certain classes of traffic. Since 1921 they have been introduced for all classes. But the principle is not as a rule applied to passenger traffic, though Austria and Italy are exceptions, and Russia some twenty years ago introduced fares tapering so fast that they had to be promptly modified. It seems sound, from the point of view of the railway, for it certainly does not cost as much to carry one passenger 200 miles as to carry 20 passengers, each for 10 miles; it also seems justified from the passenger point of view, for the longer the journey the more burdensome becomes the fare. But there is a consideration that works in the opposite direction. A short-distance passenger usually travels both ways and comes home to sleep. A long-distance passenger probably contemplates a considerable stay away from home. And the longer he stops the less important becomes the proportion that the railway fare bears to his total expenditure.

On the Underground Railways of London all the fares are calculated on a sliding-scale basis. But the Underground Railways deal mainly with habitual travellers. In this case the social justification for the adoption of the principle is undeniable. It is better for a man employed in the heart of London to live ten miles out from his work than to live only five miles. But he can only afford to devote a limited amount of time and a limited amount of money to his daily travel. From the railway point of view the justification is also clear; not only is the capital cost of the line normally less and less per mile as it recedes from the centre, but also the trains have to run in any case to their respective termini, and it pays the railway to keep them as full as possible up to the final point.

It has been pointed out earlier in this chapter that English passenger fares are almost wholly the result of commercial principles applied by business men with the training of long experience. There is a conspicuous exception in the case of workmen's trains. Workmen's trains began half a century ago when the Great Eastern advanced its terminus from Shoreditch to Liverpool Street, and in order to do so pulled down a large number of workmen's houses. Parliament then placed upon the company the obligation to build new dwellings in substitution at Enfield, and to run two trains daily at nominal fares to carry the dispossessed inhabitants. It turned out in this case, as it has constantly turned out since, that the dispossessed workmen did not migrate to the new dwellings, which were occupied by people of a quite different class. But the cheap fares attracted a large population. Workmen's houses sprang up by the hundred, and two trains were quite insufficient to carry them. More and more trains had to be put on to cope with the traffic. The idea caught on. Philanthropy at another's expense is always attractive. Each time a company came to Parliament for fresh powers, specific obligation was imposed upon it to run workmen's trains. The Cheap Trains Act of 1883, of which mention has already been made, placed a more general obligation upon all companies.

The example of England has been followed all over the Continent. Belgium, where trains are so slow and the distances for which workmen travel so long that a man is often away from his home for sixteen hours out of the twenty-four, has carried the principle furthest. And yet it is difficult to think that workmen's trains can be justified either from the economic or from the social point of view. To deal first with the economic point. Under modern conditions travel between home and workshop is as much a necessary part of a man's expenses as the rent of a house. It would seem that a man's wages should be such as to enable him to pay the fair cost of both necessities. Apart from the temporary Rent Restriction Acts, no one has ever proposed that house owners should be required to let to workmen at less than commercial rents. Why then should a railway company be required to carry workmen at less than commercial fares? That they are less than commercial may be taken as proved by the fact that the companies did not introduce them of their own free will. The whole thing is really based on the out-of-date idea of the fore-ordained dependence of the lower classes on those richer than themselves; that the rich owe to the poor not justice but something more nearly allied to charity. In America, where the idea of the social inferiority of brawn to brain is non-existent, there are no workmen's fares.

The objection from the social side is equally serious. Workmen's trains cannot be asked for, unless there is a considerable aggregation of workmen at a given point. Once the cheap train is introduced more workmen are attracted, with the result of dividing the area of Greater London into cities of the well-to-do and cities of the poor. In the crowded settlements of the East and North East of London the houses of the old City merchants are deserted by their former occupants and cut up into numbers of workmen's dwellings for which they are singularly ill designed. There are no educated and leisured citizens left, and local government suffers accordingly. Is this stratification of classes so much in the public interest that it should be artificially encouraged?

Then again what is a workman? The early English Acts dealing with the subject define him as a manual labourer. The definition broke down in practice—an accurate census of a hustling crowd in a half-lighted station is an impossibility. Nowadays in this country a workman may be defined as a person who travels by a train reaching its destination before a certain hour, usually 8 a.m.; and consequently the Covent Garden salesmen, a class not generally regarded as necessitous, but whose business requires them to be early afoot, can get the benefit; but a girl typist on a scanty salary must pay the normal fare, or else sit in a City church on a winter morning for an hour before her office opens. In Belgium a workman is strictly a person who performs manual labour; so the driver of a tramcar is privileged, while his conductor, whose wages are lower, is excluded. In fact the two definitions do not differ greatly. Broadly speaking, handworkers begin work early; clerks, shop assistants, and so forth, begin later. The handworkers, however highly paid, get cheap fares; for the other classes, however poorly paid, they are not available.

Be the justification for workmen's fares in the abstract as little as it may, they are too deeply rooted in the customs of English society to be withdrawn. Since the establishment of the Rates Advisory Committee they have at least been put on a more reasonable basis, and in some recent cases Parliament has fixed the rate at a single fare for the double journey.

We may assume that in fixing the new fares, not for workmen only but for passengers of all kinds, the Rates Tribunal, though it will doubtless put an end to obvious anomalies and tend to secure more uniformity than has existed in the past, will not feel justified in introducing any sweeping changes in the situation established by long tradition. There is, however, one question, wholly novel but of the first importance, which the Tribunal will apparently be compelled to face. Rates and fares as a whole, says the Act of 1921, are to be such as to provide to each company a certain net revenue. But how much of the total ought passengers and freight to contribute respectively? On what basis is the obligation to be assessed? Is it to be discussed from the point of view of what is equitable in the abstract, if any one knows where the equity in the case lies? Or is the Tribunal to consider whether the public interest demands that, for instance, a general reduction in freight rates should be balanced by a corresponding general advance in fares, or vice versa? Or again, is the question to be frankly discussed on the basis of what the traffic will bear, a question which the practical railway man is probably more competent to decide than any Tribunal, however wise? So much for the theoretical side of the question. But when we turn to the practical side, the difficulties are even greater. Not only do no statistics exist by which it can be shown what portion of a given company's net revenue is derived from freight and passenger traffic respectively, but no accepted apportionment of expenses exists on the basis of which such statistics could be compiled.

The difficulty of the question is greater in this than in any other country. For though nobody can answer with any approach to accuracy the question what proportion of their total net revenue English railways derive from passenger traffic, every one is agreed that they do derive a substantial part, though naturally the proportion differs greatly, even after grouping, as between the four companies. On the other hand, in many countries passenger trains are run as a disagreeable necessity without any idea of profit. In the United States this is certainly true for a large part of the country, and for almost all companies. In Germany it was admitted recently that the passenger traffic involved an out-of-pocket loss. Probably there are few countries where it yields any substantial profit. India is an exception. But then two trains a day, inordinately long, inordinately crowded, and at very moderate speed, interfere hardly at all with the freight traffic. And they yield a substantial revenue per train mile, even though the fares be on the basis of four miles for a penny.

In the foregoing pages we have touched upon a good many of the problems that must sooner or later present themselves for solution to the Rates Tribunal. Clearly with many of them it must be later, before they are seriously tackled. Otherwise the Appointed Day, when the new scales of rates and fares are to come into force, would need to be postponed till the present generation of witnesses were retired or dead. Rasselas, when there were explained to him all the qualifications that went to the making of a philosopher, said, 'Who then can be a philosopher?' Probably the railway student, when he has tried to work out for himself the solution of all the problems, the outstanding points of which have been here outlined, may say, 'Who then would be a member of the Rates Tribunal?'

[The monthly return of the Ministry of Transport for August, 1924, issued as this book was passing through the press, shows that in February, 1924, the average receipt per passenger-mile *for all classes* had fallen from 0·935*d.* to 0·840*d.*; that is to say, that the average fare *for all classes* was only 56 per cent. of the full ordinary third-class fare. Speaking in round figures, the average passenger in England is carried two miles for the same price that he pays for one mile in America; the average ton of freight is carried two miles in America for the same price as is charged for one mile in England.]

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